EFFECT OF MINDFULNESS BASED RELAPSE PREVENTION ON ALEXITHYMIA, CRAVING AND COPING STYLES IN PATIENTS WITH SUBSTANCE USE DISORDER

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foundation upon which this thesis is built, and I am deeply grateful for their contributions to the advancement of knowledge in my area of study.

Thank you

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ABBREVIATIONS

AA	Alcoholics Anonymous
MBRP	Mindfulness based Relapse Prevention
OUD	Opioid use disorder
CBT	Cognitive Behavior therapy
RP	Relapse Prevention
TAU	Treatment as usual
SES	Socio-economic status
SUD	Substance use disorder

ABSTRACT

Introduction: Substance use disorder (SUD) is prolonged repeated use of substance at high doses or high frequencies, which impairs health and function, and is marked by significant social, occupational, legal or interpersonal adverse consequences. Some of the factors associated with SUD is cravings, emotional difficulties and coping styles. Mindfulness is one such training that can help individuals with substance use in dealing with such difficulties. Mindfulness-based relapse prevention (MBRP) is an intervention for persons recovering from addiction which integrates mindfulness practices and cognitive and behavioral based relapse prevention techniques.

Aim of Study: 1) To study the pre and post effect of Mindfulness based relapse prevention intervention on drug craving in patients with substance use disorder (opioid). 2) To study the pre and post effect of Mindfulness based relapse prevention intervention on alexithymia in patients with substance use disorder (opioid). 3) To study the pre and post effect of Mindfulness based relapse prevention on coping styles in patients with substance use disorder (opioid). 4) To compare and evaluate the effect of Mindfulness based relapse prevention therapy and treatment as usual on drug craving, alexithymia, and coping styles in patients with substance use disorder (opioid).

Materials & methods: Study was conducted on 60 (30 experimental; 30 control) patients diagnosed with substance use disorder (opioid), admitted in psychiatry ward or visiting psychiatry OPD. Both the groups was assessed on TAS-20, Brief-COPE, 3 item craving scale, where experimental group filled it at pre-, post- and follow-up; and control on pre- and follow-up. Eight weekly sessions of 90-120 minutes each of mindfulness-based relapse prevention was carried out with patients in experimental group. Control group underwent treatment as usual (pharmacotherapy).

Results: MBRP showed positive results on drug craving, alexithymia, difficulty describing feelings, difficulty identifying feelings, external orientation, problem-focused coping and avoidance coping in the experimental control. The experimental and control groups were statistically different at follow up on drug craving, alexithymia, difficulty describing feelings, external orientation, problem-focused coping and avoidance coping.

Conclusion: MBRP showed promising results in decreasing craving, alexithymia and increasing the use of effective coping styles in patients with SUD.

Keywords: Substance use disorder, Mindfulness-based relapse prevention intervention, Opioid, Craving, Alexithymia, Coping styles.

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INTRODUCTION

As per National Cancer Institute, psychoactive substance is a drug that has an effect on the working of the brain and causes changes in one's mood, behaviour, awareness, thoughts and feelings.[1] This includes alcohol, opioids, cannabis, hallucinogens, inhalants, sedatives, caffeine, tobacco, stimulants etc.

India is currently in the midst of a public health crisis. For the past two decades, the growing substance use, characterized by a skyrocketing level of overdose deaths, has spread throughout the country. Substance use, whether licit or illegal, is closely linked to increased rates of morbidity, death, disability, and overall burden of disease.[2] According to the report issued by Ministry of Social Justice and Empowerment (2019), currently 16 crore people are users of alcohol; 3.1 crore individuals are cannabis users; 60 lakhs consume opioids and approximately 1.5 crore people use other drugs.[3]

Substance abuse is a pattern of compulsive substance use which is marked by recurrent significant social, occupational, legal or interpersonal adverse consequences, such as constant absence from work, school or marital difficulties.[4] It is the prolonged repeated use of substance at high doses or high frequencies, which impairs health and function, leading to an independent diagnosable illness referred as substance use disorder.

The Diagnostic and Statistical Manual of Mental Disorders Fifth Edition (DSM-5) incorporates substance use and substance induced disorders.[5] Substance-induced disorders include intoxication, withdrawal, and other substance/medication-induced mental disorders like psychosis, bipolar disorder, depression, anxiety, OCD, sexual dysfunction, sleep disorders, delirium and neurocognitive disorders.

Substance use disorders are a cluster of cognitive, behavioural, and physiological symptoms indicating that the individual continues to use the substance in spite of significant substance-related problems.[5] An important feature of substance use disorders is an underlying change in brain circuits that can last long after detoxification, especially in

people with severe disorders. When individuals are exposed to drug-related stimuli, the behavioural effects of these brain changes may manifest as repeated relapses and intense drug craving. Long-term approaches to treatment may be beneficial for these long-term drug effects.

Excessive use of any substance causes direct activation of the brain reward system, which is involved in the reinforcement of behaviours and the formation of memories. They cause such a high level of reward system activation that routine activities may be disregarded. Rather than activating the reward system through adaptive actions, medications of abuse engage the reward pathways directly. Although the pharmacological mechanisms by which each class of drug causes reward differ, the medicines typically activate the system and produce sensations of pleasure, which are sometimes referred to as a "high." Those with lower self-control, which could be due to deficits in brain inhibitory processes, are more likely to develop substance use disorders.

OPIOID

Opium is a highly addictive natural narcotic derived from the poppy plant, Papaver somniferum. To make opium, the milky fluid that seeps from the incisions in the unripe seedpod of this poppy is scraped by hand and air-dried. Opium can be smoked, intravenously injected, or taken in pill form. Morphine, codeine, heroin are derivatives of Opium poppy. Afeem, doda, chitta are some of its regional names.

India is located between the world's two largest illicit opium-producing regions - the "Golden Crescent" (Iran, Afghanistan, Pakistan) and the "Golden Triangle" (Myanmar, Thailand, Laos), thus making it vulnerable to being both a destination and a transit route for opioids.[6] India itself is known to be as one of the largest legal producers of opium.

PREVALENCE:

According to a national survey on drug use in India, the prevalence of opioid use was estimated to be 0.7 percent of the general population,

with approximately 22.3 percent being opioid dependent.[7] The prevalence of illicit opiate consumption in India is twice the global average.[8] It is estimated that approximately 4 million people in India use opioids and approximately 1 million people are opioid dependent. According to a recent study, approximately 232,000 people in Punjab alone were opioid dependent.[9] As a result, there is undoubtedly a significant burden of opioid addiction in many parts of India.

OPIOID USE DISORDER- DIAGNOSTIC CRITERIA AS PER DSM-5 [5]

A problematic pattern of opioid use that results in clinically significant impairment or distress, as manifested by at least two of the following over a 12-month period:

1. Opioids are frequently taken in greater quantities or for longer periods of time than intended.
2. There is a persistent desire or failed attempts to reduce or control opioid use.
3. A significant amount of time is spent on activities that are required to obtain the opioid, use the opioid, or recover from its effects.
4. Craving, or a strong desire or urge to use opioids.
5. Recurrent opioid use that results in a failure to meet major role obligations at work, school, or home.
6. Opioid use that continues despite persistent or recurring social or interpersonal problems caused or exacerbated by opioid effects.
7. Significant social, occupational, or recreational activities are discontinued or reduced as a result of opioid use.
8. Repeated opioid use in situations where it is physically dangerous.
9. Opioid use that continues despite knowledge of a persistent or recurring physical or psychological problem that is likely to have been caused or exacerbated by the substance.
10. Tolerance, as defined by one of the following:

a. The requirement for significantly higher doses of opioids to achieve intoxication or the desired effect.

b. A significantly reduced effect with continued use of same amount of opioid.

11. Withdrawal manifested by one or more of the following:

a. The typical opioid withdrawal syndrome.

b. Opioids (or a similar substance) used to alleviate or avoid withdrawal symptoms.

PHYSIOLOGICAL EFFECTS:

Opioids are chemicals that interact with opioid receptors on nerve cells in the body and brain to reduce pain. They can be natural or synthetic (made in laboratories to mimic the properties of natural opioids). They are a drug class that includes prescription pain relievers, synthetic opioids, and heroin. Opioids on prescription are intended to be used to treat acute pain. The drugs also reduce anxiety, induce relaxation, drowsiness, and sedation, improve mood, slow respiration and heartbeat, suppress the cough reflex, and relax the smooth muscles of the digestive tract.[10]

ETIOLOGY:

Substance dependence is the result of biological, environmental, genetic, and psychosocial factors.[11] Opioid use disorders affect people of all educational and socioeconomic backgrounds. Addiction has a biological basis. People who are deficient in neurotransmitters like dopamine are more likely to seek out external sources of endorphins. Some people may turn to opioids in an attempt to self-correct this deficit. A person who has first-degree relatives with a substance abuse disorder is more susceptible to develop an opiate use disorder. The heritability of opioid use disorder is estimated to be 50%.[12] Patients who are exposed to an opioid-using environment, have a history of depression, post-traumatic stress disorder (PTSD), anxiety, or with a history of childhood trauma and abuse are likely to develop a substance abuse disorder.[13]

Biological perspective

The manner in which opioids are able to trigger both chemical and structural changes in our brain is one of the major factor in their

addictive nature. Furthermore, comprehending these physiological alterations is essential to comprehending the motivational psychology of an addicted individual, particularly with reference to homeostasis.[14,15]

The addiction cycle consists of three stages, each with distinct neuroendocrine substrates. The first starts with the binge/intoxication stage, which mainly impacts the limbic system's dopamine release. The second stage, known as the withdrawal/negative affect stage, is brought on by a decrease in dopamine and an increase in the stress response in the body. The final stage, known as obsession and anticipation, is marked by structural alterations in the brain that prepare a previously addicted person for a relapse. Each of these phases contributes to the development and maintenance of addiction on a physiological level. In essence, opiates reduce the release of GABA in the brain, which indirectly raises dopamine levels. Nucleus accumbens (NAc) and the ventral tegmental area (VTA), which are also known as the reward pathways of the brain, are the major areas where this occurs.[15]

Studies using fMRI have demonstrated that long-term opioid abuse impairs the prefrontal cortex.[16] This has long been thought to be the case because earlier research has demonstrated that heroin addicts have trouble controlling their impulses, a problem that is usually attributed to the pre-frontal cortex.[17]
People's perspectives on opiate addiction should shift in light of the fresh knowledge that contemporary science has provided about the neurological underpinnings of opiate addiction. Given the biochemical complexity of opiate addiction, it stands to reason that the recovery process would be just as involved.

Genetic factors contribute around 40–60% of the vulnerability to any addiction. Large-scale twin studies typically indicate that, as a shared susceptibility to SUDs generally, genetic variables are more influential

than phenotypic expressions of susceptibility to or predilection for any particular individual substance. However, using more sophisticated genetic approaches, a number of loci linked to opioid use and OUD have been identified, along with a modest heritability of opioid-specific sensitivity.[15] Numerous genes, including those encoding for dopamine receptors and the dopamine transporter, opioid receptors, opioid neuropeptides, serotonin receptors and the serotonin transporter, and cannabinoid receptors, have specific allelic variants found that appear to impart risk. For instance, variations in binding affinity and signalling efficiency, elevated basal cortisol levels and opioid-mediated dynamic cortisol response, and differential analgesic effects of morphine have all been linked to polymorphisms in the mu-opioid receptor gene (OPRM1)[18]. While some studies have found a correlation between these allelic variations and rates of opioid dependence, others have not.

Psychological perspective

Understanding who has been affected by the opioid crisis allows for a psychological understanding of what drives people towards addiction, which can include chronic pain, stressors, and adverse childhood events.[15]

Chronic pain is often dealt with prescribed opioids and is not something that people try to eliminate but rather manage, causing the abuse of said medications.[19] Individuals who reside in rural regions are more prone to work physically demanding jobs and to face financial hardships. This can result in both physical injury or dissatisfaction in status. The opioid can instantly relieve the patient of a great deal of cognitive dissonance in both senses.[15]

Psychological viewpoint also affects the difficulty patients have in overcoming addiction. Opioid addicts can suffer from severe disruption in their dopamine production while attempting to recover from addiction. The inverse consequence of this is intense feelings of despair and depression. The combination of this psychological anguish and the physical pain of withdrawal is extremely difficult for the patient

to handle. The "low" they are experiencing is far more excruciating than any previous negative experience as their mind is not properly equipped with the normal chemical balance to deal with the stress of withdrawal.[20]

Adverse childhood events (ACEs) may also influence the development of opioid use disorders. Parental drug use can show both a genetic susceptibility to drug use and a poor model for healthy coping behavior in children, which can have vast effects.[15] A child without a proper role-model for healthy drug use will be more psychologically primed to use the same coping method as their parents. Opioid use can furthermore impair cognitive function in children causing problems in decision making and rational thought process.[21]

Sociological perspective

Poverty, rurality and hard physical labour has been seen to be one of the most effective marketers of opioid crisis. Poverty is related to opioid use namely in two ways. Poverty initially increases vulnerability to addiction from economic deprivation, followed by a limited access to treatments once addicted. The increased stress levels felt by these individuals, drastically increases the likelihood of turning to illicit self-medication with drugs. High levels of stress accompanied with general unhappiness not only puts this group at a high level of risk for mental disorders, but also at a high risk of developing opioid use disorder.[22]

People who do hard physical labor for work are much more likely to experience job injuries necessitating opioid painkiller prescriptions.[23] Although these medications frequently help workers recover from accidents, they can also worsen underlying conditions and lead to chronic pain that requires long-term opiate prescriptions for treatment.

Rurality has become a major predictor of opioid abuse as these individuals are more likely to not only be below the poverty line, but also work in manual labor types of jobs. Specifically, there are four factors that increase opioid use in rural areas include greater availability, out migration of young adults, social and kinship network connections, and economic stress.[15]

In another manner, increased purity has encouraged young people to consume opioids. Due to the low purity of the heroin that was available forty years ago, injection was necessary to get a significant level of intoxication. This requirement has always been a significant deterrent to young people starting to use heroin. However, due to the growth in heroin purity in street supply over the past two to three decades—often surpassing 60% purity—nasal or smoking administration is now a very effective method of administration, and young people can start using heroin and develop an addiction without injecting it.[15] Presumably, the obstacle to injecting becomes less significant after heroin addiction is established.

Pharmaceutical companies, have been directly linked to shaping the current crisis through their marketing and dealing with prescribers. As in neighbouring parts of South Asia, India has already seen a major shift in the type of opioids being used by its population. The 2004 national survey showed opium, in its non-synthetic form, being the most common opioid used in India.[24] The 2019 national survey shows heroin, the semi-synthetic form of opioids, as the most common opioid used in India, followed by pharmaceutical opioids.[3] It is a cause for worry that the next decade may witness a drastic transition towards synthetic forms of opioids, with chemist shops as a hub of informal markets for opioids. The shift of focus of transnational big pharma towards LMICs such as India may potentially exacerbate pharmaceutical opioid epidemic in India.[24]

COPING

Coping is described as the thoughts and activities used to deal with internal and external stressful conditions.[25] It distinguishes conscious and intentional mobilisation acts from 'defence mechanisms,' which are subconscious or unconscious adaptive responses aimed at reducing or tolerating stress.[26] Individuals' coping styles are a set of relatively consistent traits that determine an individual's behaviour in reaction to stress, and are defined as the many ways in which they deal with

stress when exposed to a stressor.[27] These remain constant over time and in different conditions.

TYPES OF COPING BY KNOLL & SCHWARZER [28]

1. **Proactive coping** refers to the thoughts and actions taken in advance of a stressful circumstance.[29] Individuals use it to maximise their gains. It's a more challenge-based strategy that encourages people to conserve existing resources while also seeking out new ones. Proactive coping is the collection of resources that support the advancement toward demanding goals that contribute to personal progress by being able to anticipate dangers, demands, and possibilities. Individuals that utilise proactive coping mechanisms do not regard impending stress as a threat, harm, or loss, but they are able to perceive various situations as challenges.

Five stages in proactive coping: resource accumulation, recognition of potential stressors, initial appraisal, preliminary coping efforts, and the elicitation and use of feedback concerning initial efforts.

2. **Reactive coping** is a stress-management method that entails compensating for or accepting the harm or loss connected with a past or current stressful circumstance.[30] It might also include readjusting goals, seeking benefits, or looking for purpose. All the events have actually happened in the past; thus, the individual who needs to cope either has to compensate for the loss or alleviate the harm.

3. **Anticipatory coping** is a stress-management method aimed at avoiding or minimising problems linked with a significant event that may occur in the near future and poses a danger.[31] Anticipatory coping can thus be defined as the management of known risks, involving efforts to either solve the actual problems (e.g., by increasing effort, enlisting help, or investing other resources) or to feel good despite the risks (e.g., by increasing effort, enlisting help, or investing other resources) (e.g., by redefining the situation as less threatening, by distraction, by gaining reassurance from others).

4. **Preventive coping** is a stress-reduction approach in which one prepares for long-term occurrences by accumulating resources to

lessen the degree of their impact.[32] Job loss, forced retirement, criminality, disease, and poverty are examples of such occurrences that may or may not occur in the near future. The ambiguity promotes a wide range of activities aimed at enhancing one's psychological qualities while also accumulating income, social bonds, and abilities (e.g., maintaining a savings account, locking the doors when away from home, carrying health insurance). Preventive coping does not arise from a high-stress circumstance, but rather from a legitimate concern about the risks of everyday life.

TYPES OF COPING BY LAZARUS & FOLKMAN: [33]

1. **APPROACH COPING**: Approach coping is characterised as actively approaching a stressor in order to seek information, social support, plan ahead, and attempt to solve the problems.[34] Approach coping can also entail vigilance, in which a person responds to stress by paying more attention to and analysing negative information.
2. **AVOIDANCE COPING**: Avoidance coping is a passive coping approach in which a person disengages from a stressful situation or an active coping strategy in which a person turns away from or tries to flee from a stressful situation.[35] This includes behavioural attempts to physically remove oneself from an aversive circumstance, as well as cognitive/emotional strategies to diminish thoughts or feelings, such as mental detachment or denial.

TRANSACTIONAL MODEL OF COPING BY LAZARUS & FOLKMAN:

Lazarus and Folkman (1984) define stress as a specific relationship between the individual and his environment, which is expressed through his evaluation that the situation he is faced with significantly burdens or even exceeds his mental resources thus endangering his mental balance.[36] According to the interactive model, the individual goes through two different processes which are of crucial importance to the outcome of the problem. The first is cognitive assessment which refers to the extent and the way the situation relates

to the individual. The second refers to how the problem is dealt with. Dealing with a problem is defined as the attempt to find a solution, tolerate and/or reduce the external and internal pressures caused by the situation.[37]

Essentially, appraisals mediate the relationships between antecedents and outcomes.[38] Lazarus initially identified two forms of appraising: primary appraising and secondary appraising. Primary appraising consists of motivational relevance and motivational congruence. Motivational relevance refers to the intersection with beliefs, commitments, and values, whereas motivational congruence refers to the intersection with goals and desires.[39] Secondary appraising occurs when relationships between person and environment have meaning.[38]

According to Smith and Lazarus (1993), secondary appraising consists of accountability, problem focused coping potential, emotion focused coping potential, and future expectancy.[39]

Problem focused coping entails attempting to manage or change the problem that is creating stress. These tactics are comparable to those used in ordinary problem-solving: they entail identifying the issue, examining potential solutions, weighing the costs and benefits of each, and finally choosing an option. When we take a problem-focused problem approach to stress management, we actively endeavour to solve the problem.

Emotion focused coping entails attempting to alter or lessen the negative emotions that come with stress. Avoiding, minimising, or distancing oneself from the situation, positive comparisons with others, or looking for anything positive in a terrible event are examples. Reappraisal, in which the stressor is perceived differently (and somewhat self deceptively) without affecting its actual objective level of threat, is one example of emotion-focused coping methods.

CRAVING

Craving for a substance is defined as a strong desire to consume that substance, which in turn has been associated with *The Diagnostic and Statistical Manual of Mental Disorders* (*DSM-IV*) criterion of loss of control over substance use, one of the seven criteria for substance dependence.[40] While the operational definition of craving has been debated from years, it is inherently the subjective experience, best described as a state of desire or wanting. It has been often referred to as an unpleasant state that challenges their commitment to abstinence and is often associated with relapse.[41] Further, in cravings it has been found that individuals tends to overestimate the duration and intensity of their future urges, which is consistent with Marlatt's conceptualization of cravings as ocean waves.[42]

THEORIES OF CRAVING

Neurobiology and genetics of craving

Cue-induced craving is essentially the result of associative learning. Studies have found that dopamine release into the core of nucleus accumbens in response to stimuli that predict a biologically rewarding event, such as substance use, in thought to modulate the expression of adaptive behaviours, contribute to the assignment of salience to cues, and facilitate the development of learned associations. Thus, cue-induced craving has been characterized to having neural basis, with learned processes playing an important role in cravings.[43] Further, studies have found that the long allele of the dopamine D4 receptor (DRD$) genes to be associated with greater cravings.[44]

The concept of incentive-sensitization emphasized in the theoretical work of Robinson & Berridge, focused on the neuroadaptation in the brain reward circuitry, leading to brain sensitization to drugs or its associated stimuli. This model describes craving as "wanting" i.e. as a measure of incentive-salience that is distinct from liking of a substance. This neuroadaptation is consistent over time, thus leading to strong cravings in the patient even after years of recovery.[45]

Conditioned withdrawal model

It was suggested that a process of conditioned learning could lead to neutral environmental stimuli eventually evoking conditioned reactions after several pairings with drug use. This suggests that cues, such as the sight of a needle and syringe or a location where drugs have already been administered, would cause conditioned reactions that mimic drug withdrawal. Because of their desire to avoid the uncomfortable conditioned withdrawal experience, addicts would relapse to drug use as a result of this conditioned withdrawal.[46]

The difference between "cue-elicited craving" (craving in response to cues) and "withdrawal related craving" (craving occurring in the setting of unconditioned drug withdrawal) is highlighted by Drummond (2000)[47]. These two types of craving are thought to represent the CR and the UR, respectively, in a conditioned withdrawal model. He has suggested that cue-elicited craving is likely to be more predictive of relapse than withdrawal-related craving, even if these two types of craving are probably going to be connected and occasionally coexist. This is due to the fact that withdrawal craving usually happens when the drug is not there, but cue-elicited craving happens by definition when cues, such as availability to the drug, are present. Only when the substance is accessible can there be a relapse [47].

Cognitive labelling model of craving

The cognitive labeling model of craving is a variant of Schachter and Singer's (1962) cognition-arousal theory of emotion.[48] According to that theory, an emotional experience results from the interaction between physiological arousal and a cognitive interpretation of the arousal. The interpretation provides an emotional label that determines the quality (e.g., pleasant or unpleasant) of the emotional state. The intensity of that emotion is determined by the extent of the arousal (i.e., the greater the arousal, the more intense is the emotion). As applied to craving, this model implies that opioid cues (e.g., the sight of a bar) can generate conditioned physiological arousal (e.g., a racing heart). In

addition, the cues activate mental processes (e.g., memories of previous drug taking occasions) that identify the situation as a setting for consuming substance. As a result of this cognitive response, the individual interprets the physiological reactions as craving (i.e., provides the reactions with the label “craving”).[49]

Dual-Affect model of craving

Baker and colleagues (1987)[50] proposed that craving is regulated by complex emotion-processing systems that tends to impact drug-seeking behavior, physiological reactions and, self-reports of craving and emotion. The researchers posited that craving can reflect the operation of both negative and positive emotion, or affect, systems.

Negative-affect craving can be triggered by a negative emotional response or feeling (e.g., depression or anger), aversive events (e.g., having to give a presentation to a group of strangers. When activated, the negative-affect system induces craving experiences, drug-seeking behavior, negative affect, and physiological reactions that mimic withdrawal.[49] Conversely, positive-affect craving is associated with positive emotions and with pleasurable or positively reinforcing drug effects. This craving system is activated by positive emotional condition, small amount of drug dose, cues paired with drug use, and information that the drug is available. Activation of this system induces craving, drug-seeking behavior, positive affect, and physiological responses that mimic the stimulating drug effects.[49]

The dual-affect model states that craving systems are cognitively organised into propositional networks, which are memory networks that contain knowledge about the stimuli that set off the seeking system, the responses associated with drugs, and the significance or interpretation of stimuli and responses. The degree to which various signals match the triggering stimuli recorded in the propositional network determines the intensity of activation and, in turn, hunger. In other words, there should be a greater relationship between the degree of self-reported wanting and the degree of drug-seeking behaviour as a network becomes more completely engaged. Last but not least, the dual-affect

model suggests that a propositional network's threshold for additional activation should drop after partial activation.[50]

ALEXITHYMIA

Alexithymia is a construct that refers to difficulty in identifying and describing emotions in the self. “Alexithymia,” coined in 1972 by Dr. Peter E. Sifneos,[51] originated from Greek, meaning “lack of words for emotions”. Sifneos and Nemiah (1970, 1977) coined the term Alexithymia while observing and treating individuals with psychosomatic conditions and defined alexithymia as the following:[51]

“a) the difficulty to identify subjective feelings, i.e. the inability to differentiate between different feelings and to distinguish feelings from bodily sensations of emotional arousal

b) the difficulty describing feelings, i.e. a compromised capacity to use language to symbolize the emotions

c) a limited capacity of imagination and fantasy life

d) and a utilitarian way of thinking with a stimulus bound, externally oriented cognitive style”

Alexithymia is a group of cognitive and affective characteristics that were earlier seen amongst the patients with psychosomatic diseases and later observed in patients with substance use disorder, panic disorder, anxiety disorder, posttraumatic stress disorder and eating disorders.[52]

In the past, different therapists and researchers have given different names to people with alexithymia as these people have problems in dealing, describing and expressing their emotions. Such individuals were labelled as "immature or infantile personalities, normopaths, "normotics", "antianalysands". A French psychoanalyst introduced the word "pensée opératoire" which means that alexithymia individuals have externally oriented cognitive style and also, they do not possess drive related fantasies.[53]

Alexithymia is represented by an individual's inability in imagination along with their lack of mental ability to represent and describe

emotions. The recognition of one's emotional state and to deal effectively with these emotions play a vital role in emotional regulation. As the alexithymic individuals have lack this ability, therefore, they are vulnerable to experience negative emotions.

Earlier several psychoanalysts have put forward different psychological models and have highlighted the role of defense mechanisms in order to understand alexithymia. Alexithymia acts as an ego defense mechanism where it acts against anxiety and underlying unresolved conflicts. On the other hand, it is also considered that alexithymia is a defense in a teleological sense because it is an arrest in affective and cognitive development. The defense theory and deficit theory as a valid explanation of alexithymia. The defense theory focuses on denial as an important defense mechanism against unbearable pain rather than anxieties. The deficit model exhibits the psychosomatic problems as a result of ego deficits especially inability in the fantasy formation, analysing and expressing emotions. The theory postulates that it is not the inhibition of emotions or affects rather it is lack of important functions.[54]

How is Alexithymia Caused:

Biogenic alexithymia results from physical abnormalities in brain structure. These abnormalities may be caused by brain injury (e.g. from a car accident),[55] by lack of oxygen to the brain during birth, or by the introduction of toxins. The abnormalities may also be genetic or it could be due to improper development of the brain from birth or during childhood. Psychogenic alexithymia is caused variously by emotional trauma, developmental delay, or cultural and parental conditioning. Emotional trauma can be generated by experiences such as sexual abuse, neglect, witnessing or experiencing violence, being subject to physical pain associated with injuries, or chronic diseases such as cancer, heart disease, diabetes, and rheumatoid arthritis.[56]

Alexithymia is classified into primary, secondary and organic alexithymia.[57]

Alexithymia is termed as acute ailment if it emerges "as a life-long dispositional factor that can lead to psychosomatic illness". Primary alexithymia may arise from a psychic trauma which took place in the childhood. Thus, primary alexithymia is related to a more or less stable personality trait which generally molds during childhood and early years of adulthood. Hence, primary alexithymia is formation occurs in one's nature. Whereas, secondary alexithymia does not arise during childhood, but it is a cumulative result of events which occur later stages of life. These events may have psychological significance or medical-surgical effects (illnesses or disease). Therefore, secondary alexithymia considered to have both psychological as well as somatic mechanisms, latter related to organic techniques. The term organic alexithymia defined as a condition in which alexithymia occur due to organic damage to brain structures which are responsible for emotional processing. Organic alexithymia is highly resistant to treatment, it is not related with a specific pre-morbid personality but with cognitive impairment.

Bermond distinguishes two main forms of alexithymia Types I and II/ Affective versus Cognitive Alexithymia.[58]

Type I alexithymia is characterized by the absence of emotional experience and, consequently, by the absence of the cognition accompanying the emotion. Type I alexithymia is also called "affective" alexithymia. The affective dimension pertains to the extent of an individual's subjective emotional experience, primarily encompassing the degree to which emotionally charged situations stimulate them.

Type II alexithymia is characterized by a selective deficit in emotional cognition. Type II alexithymia is also called "cognitive" alexithymia. The cognitive dimension refers to the processing of emotions at a cognitive level and mainly consists of the degree of which an individual is able to identify, analyze and describe feelings.

Somatosensory Amplification Hypothesis in alexithymia:[59]

There has been conjectured that alexithymic individual has limited ability to process emotions cognitively which leads to focusing on the somatic sensations accompanying emotional arousal. This is called the Somatosensory Amplification Hypothesis in alexithymia, which postulate that alexithymic individuals has a tendency to rely on or to amplify physical symptoms as they are hyposensitive to physical sensations. Thus, might have tendency to develop hypochondriasis and somatization disorders, as well as their alleged proneness to regulate tension through compulsive behaviors such as binge, psychoactive substance abuse, or anorexia nervosa.

INTERVENTION USED IN THE STUDY- MINDFULNESS BASED RELAPSE PREVENTION (MBRP)

MBRP has been developed by Bowen, Chawla, Marlatt[60] by integrating three different therapies which are, Mindfulness-based stress reduction by Zinn. Mindfulness-based cognitive therapy by Segal, Williams and Teasdale and the relapse protocol by Daley and Marlatt. MBRP focuses on increasing mindful awareness of the individual as a way of preventing relapse, and controlling addiction. Increasing awareness of triggers, harmful habitual behaviours, and automatic responses to environmental stimuli are ways to achieve this.

Because it integrates mindfulness techniques with conventional relapse prevention strategies, MBRP is especially successful in helping individuals identify triggers and predisposing factors for substance addiction, as well as assist them create efficient coping mechanisms and boost their sense of self-efficacy. Making better decisions or acting morally is not the main focus. It's about "simply existing in the present." Identifying high-risk circumstances where relapse is more likely to happen is hence the main goal of the treatment. To do this, one must be able to spot early indicators of relapse and become more aware of triggers, which include individuals or environments connected to substance abuse. Engaging in mindfulness practice gives practitioners

fresh perspectives on how to interpret environmental signs and potentially dangerous circumstances.[61]

GOAL OF THERAPY:

The main objective of MBRP is to enable clients to become conscious of their own triggers and spontaneous behaviour, produce methods to stop before acting on autopilot, gain a better understanding of discomfort, identify difficult emotions or sensations and counter them effectively, learn to be non-judgemental and compassionate to oneself, and build a lifestyle that supports both mindfulness practise and recovery.

MBRP model to addiction

The focus of MBRP is to develop awareness and acceptance of thoughts, feelings and sensations through practising mindfulness, to observe both pleasant and unpleasant experience, and to accept whatever is present, without judgement.

These practices are combined with traditional relapse prevention techniques for developing effective coping skills, enhancing self-efficacy and learning to recognize common antecedents of substance use and relapse (e.g. outcome expectancies, the abstinence violation effect, drinking motives, social norms and risk perception).

The relapse cycle is another important concept in MBRP. The sequence of events is dissected by defining the initial notions, feelings, and sensations, and by presenting the relapse cycle.

Identification of one's individual high-risk situation for relapse remains a central component of the treatment. Increase awareness of internal (emotional and cognitive) and external (situational) cues associated with substance use is focused on. Clients receive training on identifying relapse precursors and developing heightened awareness of cues associated with substance use.

Mindfulness practices provides clients with a new way of processing situational cues and monitoring reactions to environmental

contingencies. The idea behind addiction is that of automatic pilot where one often tends to engage in particular behaviour without thinking, causing relapse. In order to facilitate this knowledge, mindfulness is introduced, allowing the individual to become aware of what is happening with his or her body and mind.

Observation and acceptance are both of coping strategies, in which focus is on the acceptance of here and now and observation of cognitive, sensory, physical and intuitive experiences, without analysing, judging, or emotional responding. This focus is not on “doing what is right” or making “good decisions”, but rather on a state of “just being”.

MBRP training also emphasizes on acceptances and skilful action. The participants are assisted in realising that cravings are fleeting and that changing one's behaviour is a result of developing self-awareness and accepting one's feelings through skillful action and acceptance.

It is made clear to participants that acceptance is a choice in how we respond to it rather than a passive state of mind. Progress is then made when the client recognizes that ideas are just that- thought- and realizes that thoughts do not define who they are. This involves the capacity to acknowledge ideas as transitory objects and to watch them without attaching meaning or evaluation to them. As a result, clients come to understand that ideas are not accurate windows into the world.

Participants are also made to recognize the importance of having a support network, and consistent ongoing mindfulness practice. Recovery is considered to be as a lifetime journey, and participants are aware of how important diligence and dedication are in this process.

Numerous studies conducted on various populations demonstrate the value of the eight-week MBRP programme in preventing relapses in addictive behaviours. Every MBRP session has a clear goal and objective and is developed incrementally. Every week, the group is also assigned homework. Additionally, participants receive home practice

sheets to track their mindfulness practices throughout the week and gain insight into their own practice patterns.[60-62]

Hence, Mindfulness Based Relapse Prevention aims at reducing craving, improving awareness of internal emotional cues and developing effective coping skills in patients with substance use disorder.

AIMS AND OBJECTIVES

- To study the pre and post intervention effect of Mindfulness based relapse prevention intervention on drug craving in patients with substance use disorder (opioid).
- To study the pre and post intervention effect of Mindfulness based relapse prevention intervention on alexithymia in patients with substance use disorder (opioid).
- To study the pre and post intervention effect of Mindfulness based relapse prevention on coping styles in patients with substance use disorder (opioid).
- To compare and evaluate the effect of Mindfulness based relapse prevention therapy and treatment as usual on drug craving, alexithymia, and coping styles in patients with substance use disorder (opioid).

REVIEW OF LITERATURE

SUBSTANCE USE

Psychoactive substance use poses a threat to the health and social and economic fabric of families, communities and nations.[62] SUD refers to the excessive use of substances such as alcohol, caffeine, cannabis, hallucinogens (e.g. lysergic acid diethylamide), inhalants (e.g. gasolines), opioids (e.g. heroine), sedatives, hypnotics or anxiolytics (e.g. benzodiazepines), stimulants (e.g. cocaine) and tobacco (5th ed., DSM-5, American Psychiatric Association, 2013).[63]

Opioid use disorder is the chronic use of opioids that causes clinically significant distress or impairment. Opioid use disorders affect over 16 million people worldwide, over 2.1 million in the United States, and there are over 120,000 deaths worldwide annually attributed to opioids.[64]

Opioid use disorder is a common psychiatric illness in Punjab. The severity, duration, signs and outcomes vary considerably in the individuals. The debilitating condition is often associated with high relapse rates and long-lasting effects. The underlying cause and effects of substance use varies person to person. Satisfaction for the individual suffering from an addiction comes out of the feeling of pleasure, which in turn adds fuel to the addiction. Cravings are the subjective desire of the individual to experience and indulge in an addictive substance. These continuous cravings often lead to substance use disorder further giving way to maladaptive emotional experience and coping styles.

Zeidonis et. al. (1997)[65] discussed the high prevelance of dual diagnosis in case of patients with substance use disorder. Different combinations of psychiatric disorders and mental illnesses have been associated with substance use. Integrated treatment approach to tackle both the diagnosis is comparatively difficult.

In a study by Kalivas et al. (2005)[66] examining the neural basis of addiction, it was found that by decreasing the value of natural rewards, diminishing cognitive control (choice), and increasing glutamatergic drive in response to drug-associated stimuli, cellar changes in the prefrontal glutamatergic innervation of the accumbens promote the compulsive nature of drug seeking in addicts.

In a study done by Barry et al. (2014)[67] respondents held more unfavourable attitudes of people who were addicted to substance. More people showed disapproval of having a substance user marry into their family or work closely with them. Respondents were more prepared to accept discriminatory behaviours against drug addicts, were more doubtful of treatment effectiveness, and were more likely to oppose programmes designed to help them.

SOCIO-DEMOGRAPHIC PROFILE AND SUBSTANCE USE

Saluja et al. (2007)[68] studied drug dependence in adolescents. It was found that many adolescents came from nuclear families (63.5%), came from urban backgrounds (83.5%), and were school dropouts 54.1 percent. Opioids were the most commonly used primary class of substance (76.2 percent), and heroin was the most commonly used opioid (36.5 percent). At the time of the presentation, more than half of the subjects (54.2 percent) were also nicotine dependent. Almost half of the subjects (40.2 percent) had a positive family history of either drug dependence or a psychiatric disorder (5.5 percent).

In a study conducted by Saxena et al. (2010)[69] on 511 males in Dehradun, it was found that 46.9% participants from grades 10th and 12th accepted substance use. The source of obtaining substance for 75.5% of them was via friends. Majority of the participants expressed a desire to quit the substance used.

Gupta et al. (2013)[70] conducted a study on 120 patients admitted in 10 different de-addiction centers in Puniab. All the inmates were males,

47.5% were in age group of 20-30 years. 59% belonged to rural area. 46% were in upper middle socioeconomic status & 65% patients were married.

An epidemiological study conducted by Arora et al. (2016)[71] on substance use in rural Amritsar observed that maximum substance users were between the age range of 20- 49 years. Every alternate male person had used a drug at least once in his life. The study also observed that maximum substance users were either cultivators or labourers. Illiterate persons were more involved in substance use than literate persons. Those with a larger family size were more involved in drug use.

A study conducted by Arora et al. (2016)[72] studied the socio demographic profile of patients approaching a medical college in Punjab for de addiction services. The sample consisted of 200 patients. It was found that all the patients who approached the center were males with 50% patients in the age range of 25-35 years. Maximum participants (38% belonged to the Lower Middle Socio Economic Status.

ALEXITHYMIA

Alexithymia is a construct which comprises a pragmatic, externally oriented, and literal cognitive style; a difficulty in recognizing and distinguishing between feelings and bodily sensations and in describing feelings to others; and restricted imagination, marked by the paucity of fantasies, dreams, and daydreaming.

Taylor, Bagby, and Parker (1997)[73], in developing a self-report scale to measure alexithymia, expanded upon and clarified Nemiah's theory by asserting that individuals with high levels of alexithymia do not have fundamentally different emotional experiences than others. Instead, alexithymia amounts to an anomia for emotional words that exists on a continuum in the human population.

Taylor et al. (1997)[73] hypothesizes that heightened alexithymia in addictive pathologies is due to the alexithymic individual's self-regulation of their disruptive affective state.[74]

Cecero & Holmstrom (1997)[75] analyzed 100 outpatient alcoholics submitted for treatment following alcohol-related offenses. After completing weekly sessions of alcohol education, self-report questionnaires were administered finding alcoholics scored higher means on the TAS.

Similarly, Kano et al. (2003)[76] assessed differences in neural activity of alexithymic and non-alexithymic disordered individuals when presented with facial response stimulation. Individuals with alexithymia displayed deficient cerebral blood flow in the inferior parietal, middle frontal, and right inferior frontal cortices of the brain.

High degrees of alexithymia are also often characterized by flattened affect, a preoccupation with somatic sensations, communication through action and other nonverbal behavior, and a lack of interpersonal relationships (Li & Sinha, 2006).[77]

Neurobiological research has revealed that the deficiencies seen in alexithymic individuals are linked to strong inter-hemisphere blocking of the cerebral commissures in the brain (Li & Sinha, 2006)[77].

Longitudinally evaluating 30 alcoholics, Birt and colleagues (2008)[78] addressed alexithymia as a psychobiological vulnerability predisposing 6 individuals to develop addiction.

Taylor and Bagby (2013)[79] further asserted that clinical levels of alexithymia lead to impaired mental representations of emotion, thus limiting the experience of emotion and the ability to access or use the conceptual meaning of emotions.

COPING

Stress coping strategies, according to Folkman et al. (1986)[80], were cognitive and behavioural efforts used to manage (dominate, tolerate, diminish, or limit) external or internal specific demands that were beyond one's reach or power. Problem-focused coping allowed one to concentrate solely on the incident that was generating stress. Emotion-focused coping approach, on the other hand, aimed to control the emotional exhilaration brought on by stress.

Cooper et al. (1992)[81] conducted a study on 1,300+ adult drinkers from a New York county's general population. Findings suggested stress-induced drinking was a subset of men (but not women) who scored high on avoidance coping and positive expectancy from alcohol. Men with low avoidance coping and low alcohol expectancy, on the other hand, demonstrated a negative relationship between stressful life events and alcohol use.

Sinha et al. (2000)[82] studied coping strategies among Indian and Canadian students. The results revealed that Indian students preferred emotion-focused coping strategies and were less satisfied with their social support systems than their Canadian counterparts.

In a randomly drawn sample of 1,608 men and 1,645 women from the Dutch Lifestyle and Health Study, Veenstra and colleagues (2007)[83] investigated the impact of coping style on alcohol use in response to stressful life events. Individuals who scored high on emotion coping, drank more alcohol when confronted with a negative life event than those who scored low on emotion coping. Although there was no difference in alcohol use during stressful situations based on cognitive or action coping, the study discovered that cognitive coping and having more social contacts were associated with lower alcohol use overall.

Bavojdan et al. (2011)[84] studied the relationship between mental health, self-efficacy beliefs, coping strategies and locus of control in

male drug abusers in Iran. There were significant correlations between mental health and self-efficacy beliefs, problem-oriented coping strategy, emotion-oriented coping strategy and external locus of control. Increased levels of general self-efficacy, problem-oriented coping techniques, and internal locus of control improved mental health while emotion-oriented coping strategies and external locus of control resulted in poor mental health in those abusing drugs.

Maier et al. (2012)[85] evaluated impact of attending 12 step recovery program of A and NA in recovering addicts/alcoholics in terms of coping strategies. Participants who seem to be categorically involved in 12-step programmes exhibited lower level of emotion-focused coping strategies and higher level of social-support coping strategies and abstinence self-efficacy. Participation in 12-step programmes provided recovering alcoholics/addicts with active coping techniques for their ongoing recovery.

A qualitative study conducted by Nadkarni et al. (2013)[86] explored coping strategies in alcohol use disorders. AUDs were linked mostly to psychosocial stress, peer pressure, disposable income, and pleasure of dinking with negative consequences in terms or social lie, family life, personal health, and family finances. Men with AUD and their significant others used a variety of coping techniques, including avoidance, substitution, distraction, religious activities, support from AA/friends/family, limiting access to alcohol, and anger management

Sudraba et al. (2015)[87] studied stress coping strategies among patients with alcohol and drug addiction in Latvia. According to the findings, drug and alcohol addicts used more emotion-oriented coping strategies than problem-oriented coping strategies. Accepting responsibility and seeking social support were two commonly used coping methods.

A qualitative study by Church et al. (2018)[88] evaluated the nature of support available and coping techniques employed by family members of those addicted to alcohol in Goa, India. Accommodating to the addicted relative's conduct, financially adapting to their means, self-harm, reasoning with the relative, covert interfering, and avoiding conflicts and disagreements were frequently used coping mechanisms. There was a prevailing apprehension about seeking help, and the types and quality of help offered were restricted. Neighbours and family primarily offered help in the form of a "listening ear" or financial assistance. Religious and spiritual interests were frequently employed to find peace and to cope with negative thoughts and feelings.

CRAVING

Craving is often defined as a strong, urgent desire for a particular substance. [89] When a substance user attempts to change their current state of substance use, the level of craving may increase; if the craving is not satisfied, they may experience anxiety (Hellem, 2016)[90], depression (Sapkota et. al., 2022)[91], insomnia (Gates & Copeland, 2016)[92], and other psychological and somatic symptoms.
Jellinek (1960)[93] proposed that craving underlies the loss of control at the heart of addictive behavior.

A study by McHugh et al, (2005)[94] found that craving in response to opioid cues was less robust in this population than in those dependent upon heroin.

One study among individuals entering intensive outpatient treatment assessed craving and use three times per day and found that those who reported an increase in craving at one assessment were 14 times more likely to use any substance at the next assessment compared to those who did not report increased craving (Moore et. al., 2014).[95]

Research specific to certain substances of abuse has found that craving predicts subsequent use among alcohol, tobacco, and

cannabis users (Serre. et. al., 2018).[96] They did not find an effect for opiate users, but other studies have found evidence of increased craving before and after lapses to drug use among outpatients on opioid-agonist treatment (Preston, Kowalczyk, et al., 2018).[97]

Knapp et. al., (2021)[98] in his study with 73 participants with opioid use disorder, found that both negative affect and negative social exchanges uniquely related to craving on a daily basis and that extra positive social interactions can help reduce interindividual coupling of negative affect and craving during residential treatment.

Gao et. al., (2022)[99] conducted a study on 502 substance users to examine the factors influencing substance use craving and found that high level of shyness and shame, with a low self-esteem were associated with a higher level of substance use craving, which might be explained by that psychoactive substances might have been used as a means to relive social discomfort and inhibitions. Further, no association was found between substance use cravings and socio-demographic variables.

MINDFULNESS BASED RELAPSE PREVENTION

Increased practise of mindfulness has seen to reduce levels of anxiety, depression, anger, dissociation, rumination, alexithymia, difficulties in emotion regulation, experiential avoidance, and intensity of psychotic delusions (Greeson, 2009[100]; Keng, Smoski, & Robins, 2011[101]).

Garland et. al. (2010).[102] on a sample of 53 alcohol dependent adults conducted a mindfulness training aimed towards cognitive, affective and physiological mechanisms in alcohol dependence and hypothesized that mindfulness -based intervention can decrease addictive behaviour and disrupt the stress-relapse cycle and as a result decrease drug consumption, stress and thought suppression significantly and improve the recovery rate. He found that training intervention significantly reduced stress and thought suppression,

increased physiological recovery from alcohol cues and modulated alcohol attentional bias.

Iranshahri & Jenaabadi (2014)[103] examined the effectiveness of mindfulness therapy in controlling under treatment addicts drug cravings on 30 male addicts. Participants were evaluated on Craving Beliefs Questionnaire and Depression Anxiety Stress Scale. He found that 8 weeks of mindfulness-based therapy to be significantly effective in controlling drug cravings, and depression, stress, anxiety of under treatment addicts.

Bowen et. al. (2014)[104] evaluated the long-term efficacy of mindfulness-based relapse prevention in reducing relapse rates as compared to relapse prevention and treatment as usual during a 12 month follow up period and found that compared with treatment as usual group, MBRP and RP participants reported a much lower chance of relapsing into substance use and heavy drinking, and at the 6-month follow-up, those who used substances reported significantly fewer days of heavy drinking and substance use. The difference between MBRP and cognitive-behavioural RP was evident in the latency to start drug use. Compared to other groups, MBRP participants reported substantially fewer days of substance use and significantly fewer days of heavy drinking at the 12-month follow-up.

Imani et. al. (2015)[105] investigated the effectiveness of mindfulness based group therapy in patients with opioid use and found increased mean scores in observing, describing, acting with awareness, non-judging, non-reacting and decreased mean scores of alcohol and opium. He further postulated that pharmacotherapy alone is not sufficient enough to treat patients with opioid use and thus, psychological interventions such as mindfulness play an important role in the treatment of dependence as well as prevention of relapse.

Shorey et. al. (2017)[106] in their study examined a 4 week eight-session, adjunctive mindfulness and acceptance group therapy for 117 patients in residential substance use treatment, with primary outcomes: substance use cravings, psychological flexibility, and dispositional mindfulness at treatment discharge. Findings showed small effect size differences at discharge, in favour of the Mindfulness and Acceptance group, for reduced drug cravings and increased psychological flexibility. Moreover, among individuals who received the Mindfulness and Acceptance group, the perceived importance of the group was associated with lower drug cravings and greater psychological flexibility related to substance use at discharge.

Norman, Marzano, Coulson & Oskis (2018)[107] carried out a systematic review on effect of mindfulness-based interventions on alexithymia, combining 460 participants and found statistically significant effect of treatment on alexithymia compared with control group, concluding mindfulness-based interventions as an effective treatment for the same.

Sancho et. al. (2018)[108] conducted a systematic review on mindfulness based interventions for treatment of substance behavioural addictions and included 54 articles in his study. He found that mindfulness-based treatments are effective in reducing dependence, craving, perceived stress as well as improve mood state and emotional dysregulation of the individual. He further revealed that treatment such as mindfulness-based relapse prevention and Mindfulness-Oriented Recovery Enhancement presented better results in comparison of other treatments.

Cavicchioli, Movalli & Maffei (2018)[109] conducted a meta-analysis review of clinical efficacy of mindfulness based treatment for alcohol and drug use disorders and found small effect sizes in abstinence, levels of perceived stress and avoidance coping strategies and large

effect sizes were associated to levels of perceived caring and negative affectivity.

Davis et. al., (2019)[110] demonstrated a study using a rolling group mindfulness-based relapse prevention (MBRP) intervention for young adults in residential substance use disorder treatment. They examined change in impulsivity facets measured by the S-UPPS for youth randomly assigned to MBRP (*n* = 45) versus those assigned to treatment as usual. The results indicated that MBRP is effective at reducing facets of trait impulsivity in treatment-seeking individuals with SUDs. Only positive and negative urgency mediated the relation between treatment assignment and substance use.

Hao & Jin (2020)[111] examined the moderated mediation effects of mindfulness facets in association between alexithymia and problematic mobile phone usage on 901 Chinese undergraduate students and advanced our understanding of mindfulness skills underlying connection between alexithymia and problematic phone usage. The results showed that alexithymia positively predicted problematic mobile use both directly and indirectly via mindfulness facet of acting with awareness and role of observing.

Roos, Bowen & Witkiewitz (2020)[112] examined approach coping and substance use outcomes following mindfulness-based relapse prevention among individuals with negative affect symptomatology and found that mindfulness-based relapse prevention predicted increased in approach coping, which predicted fewer heavy drinking days and substance related problems at 12 month follow up.

Ross- Anyaso (2021)[113] did a mindfulness-based intervention and relapse rates, which consisted of meditation and mindful breathing exercises, motivational interviewing and relapse prevention cognitive therapy, in adults with history of substance use disorder and found less than 15% reduction in incidence after three months of MBI intervention,

with clinically significant improvement in relapse outcomes two months after intervention.

Ramadas et. al. (2021)[114] in his recent research study on effectiveness of this intervention in substance use patients found that it helps reduce cravings, decrease frequency of use and improves depressive symptoms.

Palma- Álvarez et al. (2021)[115] conducted a study on 126 Spanish outpatients with substance use disorder, correlating their alexithymia levels to psychiatric comorbidities and found that alexithymia was found to be significantly higher in patients who had cannabis use disorder and also that these individuals has higher levels of depression, anxiety, impulsivity.

Somohano & Bowen (2022)[116] in a sample of 83 women with PTSD and substance use disorder applied either traumatic-focused mindfulness based relapse prevention or MBRP in the participants and found that TI-MBRP demonstrated acceptability among participants; however, attrition was high (64%) at 12-month follow-up. Reductions in PTSD were greater in the MBRP than in the TI-MBRP group at post course and 1-month follow-up, and there were significant reductions in PTSD severity and craving over the 12-month period in both conditions.

Asadabad et. al. (2022)[117] did a quasi-experimental study with a pre-test-post-test and follow-up design on 36 patients who met the diagnostic and statistical manual of mental disorders (DSM-5) criteria for OUD. The participants were randomly assigned to two groups. One group received a combination of MBRP group therapy and TAU, and the other group was treated only by TAU. The participants filled out the Other as Shamer Scale and the Forms of Self-Criticizing/Attacking and Self-Reassuring Scale in the pre-test, post-test, and follow-up stages. The study found that mean score of shame significantly decreased in

the follow-up compared to pre-test and post-test. Moreover, the combination of MBRP group therapy and TAU was significantly more effective than TAU alone.

Massaro et. al. (2022)[118] took a sample of 108 Spanish detoxified outpatients in TAU (i.e., relapse prevention program) for SUDs were randomized to a TAU + I-MBRP group (*n* = 54) or TAU + I-RT group (*n* = 54). Participants completed self-reports measuring substance use, craving, impulsivity, well-being, and mindfulness at pre-treatment, post-treatment, and follow-up at 2 months and 4 months. The I-MBRP, compared with the I-RT, significantly reduced the frequency of substance use and craving and improved mindfulness skills at the end of treatment. The benefits were maintained at 4 months.

NEED FOR THE PRESENT STUDY

The current study studies the efficacy of MBRP on craving, alexithymia and coping skills in patients with opioid use disorder. As per the literature reviewed, there is significant data on the efficacy of MBRP as a treatment approach for multiple psychiatric disorders including substance use disorders. However, there is still dearth of data when it comes to applicability of MBRP to an Indian population. The rapid spread of substance addiction is India across various communities, age groups and gender groups is worrisome, given its adverse impact of physical, mental, emotional, social, and financial functioning. This highlights the need to address this hurdle with complete intensity. Various pharmacological and non- pharmacological interventions have been carried out in the field of substance and MBRP is another one of these mediations which has been proven effective abroad.

India being such a diverse country is highly varied in its population throughout various states. With increasing globalization and modernization, accessibility to drugs is no more a difficulty for people, regardless of education occupation, socio-economic status, religion, state etc. Punjab is one such state which has witnessed significant

spread of substance over the years. Thus, interventions in the field of substance use in Punjab are in the need of the hour.

While previous researches such as Cognitive Behaviour Therapy, Motivational Enhancement Therapy, Family therapy have been proven to be beneficial if administered effectively. However, seeing the high relapse rates in substance use patients, the need of the hour asks for a more integrated approach rather than the only prescribing treatments.

MATERIALS AND METHODS

SOURCE OF DATA

Study was conducted on 60 patients diagnosed with substance use disorder (opioid) as per ICD-11 admitted in psychiatry ward or visiting psychiatry OPD at Dayanand Medical College and Hospital, Ludhiana.

SAMPLE COLLECTION

The study included 60 patients diagnosed with substance use disorder (Opioid use disorder) admitted in Psychiatry Ward or visiting psychiatry OPD at Dayanand Medical College and Hospital, Ludhiana from 18 to 60 years of age. The participants were divided into two groups: experimental and control. (where, e*xperimental group* consisted of 30 patients with substance use disorder (opioid) who were given mindfulness-based relapse prevention intervention and *control group* consisted of 30 patients with substance use disorder (opioid) who were given treatment as usual- pharmacological).

RESEARCH DESIGN

The design of the study was experimental group design with pre and post intervention. There were two groups of participants- Control group and Treatment-as-usual group. Both the groups were administered a pre-test, received treatment intervention accordingly, and administered a post-test at the end of the intervention.

SAMPLING TYPE

Purposive sampling was used to form sample for data collection. The respondents who met the inclusion criteria were selected for the study.

INCLUSION CRITERIA (Experimental group)

- ICD 11 diagnosis of substance use disorder (opioid use disorder) in treatment.
- Patients in maintenance phase of the treatment.

- Age group between 18 to 60 years of either gender.
- Primary level education
- Patients willing to give informed consent.

EXCLUSION CRITERIA (Experimental group)

- Patients having a diagnosis of any other substance use disorders apart from opioid use
- Presence of comorbid psychiatric disorders.
- History of intellectual disability
- Major neurological disorder or communication disorder

INCLUSION CRITERIA (Control group)

- ICD 11 diagnosis of substance use disorder (opioid use disorder) in treatment.
- Patients in maintenance phase of the treatment.
- Matched for age, gender, and education level
- Patients willing to give informed consent.

EXCLUSION CRITERIA (Control group)

- Patients having a diagnosis of any other substance use disorders apart from opioid use
- Presence of comorbid psychiatric disorders.
- History of intellectual disability
- Major neurological disorder or communication disorder

METHODOLOGY

The study was conducted on 60 patients from 18 to 60 years of age, diagnosed with Substance Use Disorder (where 30 participants with Opioid use disorder were in experimental group and 30 participants with opioid use disorder in control group) admitted in psychiatry ward or visiting psychiatry OPD at Dayanand Medical College and Hospital, Ludhiana, undergoing de-addiction treatment. All participants were informed of the study's aims and objectives, as well as the fact that

their participation was entirely voluntary. Informed consent was taken from all the participants. They were informed about their right to withdraw from the study at any moment. Participants were further informed and assured about the confidentiality of the information provided by them. They were educated about their rights to ask questions at any point during the research and to obtain a briefing on the study findings if so requested. Socio-Demographic Performa was filled containing the basic information of the participant. They were evaluated for their coping skills using Brief COPE; alexithymia using Toronto Alexithymia Scale; and craving using 3-item Craving Scale, prior to the intervention of each group. Each participant of control group underwent treatment as usual- pharmacological treatment. Each participant of experimental group underwent 8 sessions of Mindfulness Based Relapse Prevention. One MBRP session was conducted weekly for 8 weeks. The duration of the MBRP sessions was approximately 40 minutes each. The MBRP sessions were delivered via individual therapy. After 3 months of baseline appointment, participants of both groups were re-evaluated for alexithymia, craving and their coping strategies using the above mentioned tools.

TOOLS:

1. **Socio-demographic Performa**
2. **Toronto Alexithymia Scale**
3. **Brief COPE**
4. **3-item Craving Scale**

1. **Socio- demographic Performa:** A semi-structured proforma was designed for the present study in order to collect detailed clinical history of each participant including information related to following areas:

- Socio-demographic details including age, gender, MRD number, occupation, education, occupation, income, marital status

- Information related to substance use- duration, last used, frequency and mode

2. **Toronto Alexithymia Scale (TAS- 20)**- Alexithymia will be measured using TAS-20, which is a self-report scale that is comprised of 20 items. This scale has three subscale: difficulty describing feelings (5 items- 2, 4, 11, 12, 17); difficulty identifying feelings (7 items- 1, 3, 6, 7, 9, 13, 14) and externally oriented thinking, which is the tendency of individuals to focus their attention externally (8 items- 5, 8, 10 15, 16, 18, 19, 20). Items are rated using a 5-point Likert scale whereby 1 = strongly disagree and 5 = strongly agree. There are 5 items that are negatively keyed (items 4, 5, 10, 18 and 19). The total alexithymia score is the sum of responses to all 20 items. The TAS-20 uses cut off scoring: equal to or less than 51 = non-alexithymia, equal to or greater than 61 = alexithymia. Scores of 52 to 60 = possible alexithymia. Demonstrates good internal consistency (Cronbach's alpha = .81) and test-retest reliability (.77, $p<.01$).

3. **Brief- COPE** (Carver, C.S.): It is an abbreviated version of 60 item COPE inventory. The items deal with ways one has been coping with the stress in their lives. It measures following subscales:

- **Self-distraction**: It is defined as diverting one' attention away from a stressful occurrence by engaging in activities such as watching television, exercising, or indulging in other pleasurable hobbies. Without immediately confronting the circumstance or attempting to fix the problem, the person copes.
- **Active coping**: It is the practise of taking proactive steps to alleviate, avoid or mitigate the stressors consequences. Active coping entails taking direct action, increasing one's efforts, and attempting to carry out a coping strategy step by step.
- **Denial:** Denial is the refusal to believe that the stressor exists or trying to act as though the stressor is not real.

- **Substance use:** Turning to the use of alcohol and other substances in the face of adversity to avoid having to directly and consciously deal with the stressor
- **Use of emotional support:** Seeking social support in the form of moral support, sympathy, or understanding from others for emotional reasons.
- **Use of instrumental support:** Seeking social support for practical and instrumental reasons including seeking advice, help or knowledge.
- **Behavioural disengagement:** Lowering one's effort to deal with the stressor or even abandoning attempts to achieve gaols that the stressor is interfering with. It is most likely to occur when people anticipate negative coping outcomes and has been associated with helplessness.
- **Venting:** The inclination to focus on and ventilate whatever sorrow or upset one is experiencing is known as venting.
- **Positive framing:** Rephrasing a stressful transaction ina positive light. The goal is to help people manage their distressing emotions rather than the stressor itself.
- **Planning:** Planning entails considering how to cope with a stressful situation. Coming up with action methods, thinking about what steps to take, and how to best tackle the situation are all part of the planning process.
- **Humor:** The tendency to provoke laughter or provide amusement, assists people in reassessing difficult experiences ina positive light by looking for silver lining.
- **Acceptance:** A person who accepts the reality of a stressful circumstance and hence appears to be engaged in attempting to deal with it. Acceptance is essential in situations where the stressor is something that must be adjusted to, as opposed to situations where the stressor can be easily changed.
- **Religion:** The tendency to turn to religion in times of stress.
- **Self-blame**: the belief that one's experiences are a direct outcome of one's actions or character.

The scale consists of 28 items, scored on a 4 point scale from 1 (I haven't been doing that at all) to 4 (I've been doing this a lot). Brief COPE's internal consistencies were found to be good for emotion-focused, problem-focused and dysfunctional subscales (alpha = 0.72, 0.84, 0.75).

4. **The 3-item Craving Scale** (Weiss et al., 1995) consists of the following items: (1) "Please rate how strong your desire was to use in the past 24 hours." (2) "Please imagine yourself in the environment in which you previously used drugs or alcohol. If you were in this environment today, what is the likelihood you would use?" (3) "Please rate how strong your urges are for drugs or alcohol when something in the environment reminds you of it." Each item was rated on a scale from 0 to 9, and the total was calculated as the average of the three items. Higher score indicates greater craving. The Craving Scale demonstrated strong internal consistency reliability (omega = .81), a single-factor latent structure, and adequate concurrent and discriminant validity (McHugh et. al., 2021).[29]

PROCEDURE

Baseline assessment- The patient first underwent informed consent process, in which the necessary information was provided to enable the participant to make an informed decision. The participants who provided consent were then given baseline assessments along with Socio Demographic Performa. The participant were then randomly assigned to experimental v/s control group measure, and scheduled for their intervention appointment.

The participants in the experimental group underwent 8 weekly sessions of Mindfulness-based relapse prevention therapy. Post intervention they were re-assessed on baseline assessments.

The participants in the control group were given treatment as usual (pharmacotherapy) and re-assessed on baseline assessments after 3 months.

The scores were then compared and analyzed using appropriate statistical methods.

Intervention appointment- This would consist of the following sessions:

Session plan for Experimental group (based on Penberthy et. al., 2015).[61]

S.NO	SESSION	AREA
1	Baseline appointment	Reviewing history, Baseline assessments
2	Session 1	Automatic pilot and relapse. Therapeutic exercises: raisin exercise and body scan meditation
3	Session 2	Awareness of triggers and cravings. Introducing triggers. Therapeutic exercises: urge surfing and mountain meditation
4	Session 3	Mindfulness in daily life. Focus on here and now. Therapeutic exercises: SOBER (Stop, Observe, Breath, Expand, Respond) breathing space is introduced.
5	Session 4	Mindfulness in high-risk situations. Focus on past situations and learning to look at urges differently. Therapeutic practices: SOBER breathing space in challenging situations and walking meditation
6	Session 5	Acceptance and skill action. Therapeutic exercise; sitting meditation and SOBER
7	Session 6	Seeing thoughts as thoughts. Sitting meditation and SOBER
8	Session 7	Self-care and lifestyle balance. Loving kindness meditation
9	Session 8	Social support and confirming practice. Therapeutic exercise: body scan and meditation. Post intervention assessment and debriefing

8 weekly sessions of 90-120 minutes will be given.

For those in the Control Group, after the baseline assessments, they underwent treatment as usual. Patients were re-assessed on the baseline assessments after a period of 3 months.

INTERVENTION

MINDFULNESS BASED RELAPSE PREVENTION (MBRP)

Mindfulness-based relapse prevention (MBRP) was developed by Bowen, Chawla, Marlatt by integrating three different therapies which are, Mindfulness-based stress reduction by Zinn; Mindfulness-based cognitive therapy by Segal, Williams and Teasdale and the Relapse Protocol by Daley and Marlatt. It integrates mindfulness practices and cognitive and behavioural based relapse prevention techniques, with the goal of helping individuals with addiction to avoid a return to substance use. The goal of MBRP is to develop awareness and acceptance of thoughts, feelings and sensation through practising mindfulness, to observe both pleasant and unpleasant experience and to accept whatever is present without judgement. These practices are combined with traditional relapse prevention techniques for developing effective coping skills, enhancing self-efficacy, and learning to recognize the common antecedents of substance use and relapse.

MBRP INTERVENTION PROCEDURE

In the current study, the researcher conducted eight MBRP sessions on participants of experimental group, where each session involved use of mindfulness exercises along with relapse prevention protocol.

An introductory session was followed by eight MBRP sessions, which each session focusing on MBRP model's core features. A post test session was conducted after 3 months of baseline appointment. The session plan was adopted by Mindfulness Based Relapse Prevention protocol given by Bowen, Chawla and Marlatt. Few modifications and implications were made accordingly to suit the Indian population and the requirements of the study and researcher.

SESSION PLAN- EXPERIMENTAL GROUP

PRE-TEST PHASE: INTRODUCTORY SESSION:

- Participants were explained the aims and objectives of the study.
- Informed consent was taken.
- Participants were informed regarding the voluntary nature of the study and their right to withdraw from the study at any given point of time. They were told about the future implications of the study and their right to ask for results of the study if they wished to. Participants were also informed regarding the active nature of the intervention to be used in the study.
- Researcher focused on building rapport with the participants.
- Socio-demographic Performa was filled.
- Detailed case history of the participants with details of substance used, first intake, quantity, frequency, modes of administration, withdrawal symptoms, changes in use pattern, treatment history, family history of substance use, triggers etc. was taken.
- They were further evaluated on their coping skills using Brief COPE; alexithymia using Toronto Alexithymia Scale; and craving using 3-item Craving Scale.

  Mindful minute exercise (1 minute): Participants were instructed to sit comfortable in their chairs and put their hands on their bellies. This was followed by taking few slow, deep breaths up to the count of 4. They were instructed to notice their belly move out when they breathed in and notice their belly move in when they breathed out. Attention was to be focused on the belly movement. In case of any thought, it was simple noticed as a thought as if it were a cloud in the sky. The thought would further pass by, just like a cloud. No matter the number of thoughts coming in, the participants had to just notice them and then bring their attention back to their breath and belly movement.

FIRST SESSION: In the first session, the concept of the automatic pilot was explored, and participants gained insight into how acting instinctively is connected to relapse. In order to facilitate this

understanding, mindfulness was introduced, forcing the individual to become aware of both his or her physical and mental states. Raisin exercise helped participants comprehend the idea of mindfulness, thereafter, introducing them to body scan meditation. At depth discussions about any uncertainties that the participants may have related to therapy and its protocol was covered. After that, the participants were instructed to choose one daily task, complete it thoughtfully, and journal about their experiences.

Raisin exercise: The benefits of mindfulness in tuning into our senses and experiences in the present were discussed with the participants. Participants were told to focus the attention of all their senses as they eat a raisin. Participants were instructed as follows:

“First, take a raisin and hold it in the palm of your hand or between your finger and thumb. Take time to really focus on it; gaze at the raisin with care and full attention—imagine that you’ve just dropped in from Mars and have never seen an object like this before in your life. Let your eyes explore every part of it, examining the highlights where the light shines, the darker hollows, the folds and ridges, and any asymmetries or unique features. Turn the raisin over between your fingers, exploring its texture. Maybe do this with your eyes closed if that enhances your sense of touch. Hold the raisin beneath your nose. With each inhalation, take in any smell, aroma, or fragrance that may arise. As you do this, notice anything interesting that may be happening in your mouth or stomach. Now slowly bring the raisin up to your lips, noticing how your hand and arm know exactly how and where to position it. Gently place the raisin in your mouth; without chewing, noticing how it gets into your mouth in the first place. Spend a few moments focusing on the sensations of having it in your mouth, exploring it with your tongue. When you are ready, prepare to chew the raisin, noticing how and where it needs to be for chewing. Then, very consciously, take one or two bites into it and notice what happens in the aftermath, experiencing any waves of taste that emanate from it as you continue chewing. Without swallowing yet, notice the bare sensations of taste

and texture in your mouth and how these may change over time, moment by moment. Also pay attention to any changes in the object itself. When you feel ready to swallow the raisin, see if you can first detect the intention to swallow as it comes up, so that even this is experienced consciously before you actually swallow the raisin. Finally, see if you can feel what is left of the raisin moving down into your stomach, and sense how your body as a whole is feeling after you have completed this exercise."

The aim of the raisin exercise is to focus the participants attention on the awareness of the food, without judgement and in longer term, to diminish distractions and emotional responses.

Body scan meditation: In order to improve the interoception (awareness of what is going inside the body) of the participants, body can meditation was introduced. By scanning for the presence of physical sensation or energy, participants learn more about their internal physiology, and mental and emotional state. It is taught that the sensations in the body are impermanent and although they are part of the person, they are not defined by it and can actually choose how to label and react to the said sensation.

The participants are given following instructions:

"The aim of this exercise is to bring awareness to the physical sensations in different parts of your body. Your mind is probably used to labelling these sensations as good or bad. For this exercise, see if you just able to notice what you feel without judgement. Continue to breathe at your own pace, allowing each breathe to come as it may, without any conscious effort to change your breathing. Now bring your awareness to any body part, notice the sensations as they come and go, without naming them as good or bad. If you become aware of any tension, see if you can "breathe in" to it. Slowly, move your attention to other body part, repeating the process."

SECOND SESSION: Participants were asked about the home-practices that were introduced to them in the last session. Their experience with the same was explored. They were asked for any difficulty that they may have experienced. This session covered issues including doubts, lethargy and sleepiness during meditation, restlessness and agitation, craving and desire, and aversion to meditation owing to bodily discomfort.

RAIN formula was introduced to help the participants with these hindrances:

- R Recognize them when they are present as barriers. Which hindrance or combination of hindrances are they?
- A Accept them. Accept these sensations. Do not try to resist. Let them wash over you.
- I Investigate them. Be curious about your doubts, your desires, and your aversion. What are they like? How do these hindrances feel in the body? Are they pleasant? Unpleasant? Changing? How does this barrier make me feel emotionally? What is the energy level of these feelings? Do you feel like you are rushing, sinking, lifting? What are your thoughts, beliefs or stories about these feelings? Do you have an urge to act? What are you clinging to?
- N Non-identification with them. Such feelings are just passing mental events and are impermanent in nature. They do not define you. Let the sensations go.

  Further, triggers were familiarised to the patients. Events known as triggers are those that cause cravings in the participants. Participants received training on how to avoid responding to these kind of stimuli. Triggers are shown as a series of sensations and reactive behaviours that are illuminated, including their thoughts, feelings, and behaviour. In order to deal with triggers, participants were trained to stay with the craving rather than give in to it through a technique called urge surfing. To counteract any discomfort that urge surfing may have caused, mountain meditation was added.

Urge surfing: Participants were educated about their urges and how urges for substance use rarely last for more than 30 minutes, if there is no opportunity to use. They were asked to imagine urges as ocean waves that arrive crest and subside. Participants were asked to focus on how they appear small when the start, eventually growing in size and then break up and dissipate.

Mountain meditation: Participants were asked to visualize a majestic mountain and then imagine their body becoming like it- solid, grounded still. “Let the legs become the base, arms and shoulders as slope, spine as axis, head as peak. Further, visualize the mountains as season begins to change. See it in autumn, surrounded by golden, warm light and brilliant colors. Gradually autumn gives way to winter, and the mountain is assaulted by intense and violent weather, by fog, snow, and ice. Notice how the mountain remains still, quiet, and steady through the storms. Watch as the seasons flow into each other. In spring, the snow melts, birds sing, and animals return. In every season clouds cover the mountain and then blow away, storms arise suddenly and pass. See if you can sit like the mountain, still and grounded through the changes of weather, time, and seasons, allowing day and night to come and to go, accepting change, not resisting it. Feel yourself being present, rooted, centered, and still, unmoved by storms, wind, cold, rain, heat, moments of darkness and light, joy and sorrow.”

THIRD SESSION: The participants were advised to practise mindfulness during the day by focusing their awareness to their breath which helps bring attention to the moment. Higher degrees of awareness of thoughts, feelings, and emotions are developed as a result, which reduces reactive behaviour by increasing mindfulness. SOBER (Stop, Observe, Breath, Expand, Respond) breathing space was familiarized to the participants.

SOBER breathing space: This technique is a brief intervention that can be practised by the participants at anyplace and anytime, especially during a stressful situation where the mind is jumping from

one thought to another. This helps the participants to step out of the "automatic pilot" and be less reactive and more aware of their response.

- S- Stop. Participants were asked to remember to stop and do this exercise whenever they are in a stressful situation.
- O- Observe the thoughts going in their mind and recognize them as mental events. Notice the emotions or any bodily feelings and just notice your whole experience.
- B- Breath. Focus on your breath, the expansion and deflation of the belly as you breathe
- E- Expand your awareness to the rest of the body, the experience, the situation and gently hold it in awareness as you breathe. If any tension is notices, breathe into those areas.
- R- Respond (versus react) mindfully, with awareness of what is truly needed in the situations and how to best take care of yourself.

FOURTH SESSION: The fourth session examined circumstances in which the individual had previously given in to substance abuse. Participants were taught how to view the demands that give rise to these cravings in a new way and practise how to handle such demanding circumstances. The participants were taught attentiveness to sound, breath, feeling, and thoughts during sitting meditation.The utilisation of SOBER breathing space in difficult circumstances was imparted to the participants.

Some of the high-risk situations were discussed with the participants, including:

- Unpleasant emotions: Substance consumption may be triggered by feelings of boredom, experiencing depression, sadness, guilt or some other negative emotion.
- Physical discomfort: It may be triggered when one is feeling ill or in pain

- Conflict with others: It may be triggered by a disagreement with someone, like a family member, resulting in feelings of anger and frustration.
- Testing personal control: It may be triggered when one starts to believe that they can handle the drug.
- Pleasant emotions: One may consume when feeling good or may consume impulsively without worrying about the consequences.
- Social pressure: It may be triggered by peer pressure such as friends going to parties and being asked to join.
- Need for excitement: It may be triggered by having nothing to do and looking for something to help alleviate boredom.
- Urges and temptations: Substance addiction may be triggered when one walks by a pub or saw something that reminds them of drug use.

  Sitting meditation: The participants were given the following instructions:

  "Allow yourself to settle into the present moment and sit comfortably in your chair. Posture is important during meditation practice. Adopt a posture that promotes wakefulness and comfort. Keep your back straight, but not stiff. Uncross your legs and arms so as to allow the energy to flow freely through your body. You may want to sit with your back away from the backrest of the chair, so that it is self-supporting. Notice what is happening right now, in terms of thoughts, feelings, or body sensations. Notice the sensations of your body resting on the chair and feet planted firmly on the ground. Bring your attention to the sense of hearing and notice sounds. Notice the quality of sounds. Notice at what point your hearing and the sound intersect. Try to stay with the experience of hearing and not thinking about what you are hearing. Leaving hearing in the background, now bring your attention to the breath. Notice where in your body you are experiencing breathing: the chest, belly, or nostrils. Notice the chest and belly as they rise and fall with each breath in and out. Notice that the body knows how to breathe itself. There is nothing that you need to do to make it happen, just allow it to happen. Notice the quality of the breath. Is it fast, slow,

deep, or shallow? Notice, with curiosity, when the mind has wandered away from the breath. Maybe the mind was drawn to thoughts, feelings or body sensations. This is normal and happens a lot. It is what the mind does. If you notice that thinking is happening, just label it as “thinking” and gently bring your attention back to the breath, without judgement. This practice is as much staying with the breath as it is bringing the mind back from where it wandered. Now expand your awareness to the rest of your body. Scan for any compelling sensations or tension. If there are any sensations that are drawing your attention, then rest your awareness on that sensation and breathe into it. When ready, you can bring your awareness back to the rest of the body. Now shift your attention away from the body, leaving it in the background and bring your attention to any thoughts that may be arising. See if you can notice the next thought. Observe thoughts as you may observe clouds floating across the sky. Notice when you might get carried away by a particular thought and find yourself lost in it, rather than observing it from the outside. After observing thoughts for a few minutes, leave that in the background and shift your attention to awareness of emotions. See if you can notice any emotions present and bring your awareness to them. Also, notice any thoughts that may be associated with the emotions. Try to stay with the sensations of the emotions, the experience of them, without thinking. Bring your awareness to the breath at the same time and stay with that for a while. When you are ready, shift your attention away from emotions and just on the breath. When you are ready, gently open your eyes, while maintaining awareness.”

FIFTH SESSION: The participants were inquired about their home-practise and its effect. They were asked about any difficulties they faced or queries that they had. After resolving any issues faced, focus was shifted to the aim of the session i..e, acceptance and skillful action. The participants learned how to accept difficult or upsetting events that in the past may have served as triggers for substance abuse. Self-

acceptance is a component of acceptance, and it will aid in changing one's beliefs and actions.

Participants were educated about how accepting and allowing “what is” without resistance or judgement is the first step in the change process. Participants were taught how to act in such circumstances using their sober breathing space.

Brain storming was done with the participants about what comes to their mind when they hear the word “acceptance” and their responses were noted and discussed. Questions such as- “Can you be fully present without being accepting of what is happening in the present moment?” were given to consider. Participants were reminded of how acceptance is a simple concept yet difficult to achieve. Further, participants were asked about something that tends to annoy or frustrate them. Once, they had a chance to get into that situation, they were asked to stop and do mindful breathing. After, they were asked about what did they observed from this practise. At the end of the session, handouts were given to the participants listing columns of- high risk situation/ trigger; reaction, feeling, thoughts that they experienced at that time; did they practise breathing space exercise; and lastly did it work or not.

SIXTH SESSION: Over the course of the sessions, participants have learned how to pay attention to their body sensations and to their breathing. In the sixth session, participants were taught that thoughts are just that—thoughts. One does not become their thoughts, and as a result, one is not required to act or behave in accordance with their thoughts. The examination of ideas and beliefs as a component of the relapse cycle was also required of the participants. Participants were reminded of how thoughts are not facts, and can rather be seen as passing mental events. They were told to notice how their thoughts tend to be repetitive and go around in circles. Metaphors were used to help the participants see thoughts as passing mental events, rather than getting engaged in the content of the thought.

Leaves on the river metaphor involves seeing thoughts as leaves floating by on a stream, while sitting on the side of the stream or on a bridge. Each thought can be represented by one of the leaves floating by on the stream. Racing thoughts are represented by a fast-moving stream. Participants were encouraged to even put thoughts like “This feels so weird” or “I don’t think things like this work” on leaves and simple watch as these thoughts go by, without engaging in them. They were further encouraged to use metaphors that suits them best or create their own.

Participants were asked to write their addiction related thoughts (eg: I will just have it once and then leave it; I know I will be able to stop). Connection between thoughts and relapse was made, where participants were asked to consider questions such as “How does my thoughts and relapse relate?”. Further, using a chain analysis, the participants were educated about how thoughts and emotions are at the core of relapse and it is possible to bring awareness to what is happening and choosing to do something else.

SEVENTH SESSION: In the seventh session, participants were prompted to examine their lives from a wider angle and consider leading healthier lives. Investigating a way of life that involves fulfilling pursuits could aid in the individuals' recuperation. In addition to being trained to feel more at ease practicing mindfulness on their own, the participants received preparation for the conclusion of therapy. This session emphasised on the aspects of daily lives that are nourishing and those that put the participants at risk for addiction. Any hard feelings that the participants had about themselves, due to their addiction were addressed. Statements such as “No one is immune to suffering” or “No one is perfect” were made to open them the idea of shared humanity and how everyone is human and suffers at some point in life.

The acronym HALT can be used for some participants to monitor themselves. Individuals whose any of these needs are lacking, may find themselves vulnerable to triggers.

- HALT stands for: Hungry: Are your physical and nutritional needs being taken care of?
- Angry: Are your emotional needs being taken care of?
- Lonely: Are your social and relational needs being taken care of?
- Tired: Are you getting enough rest and rejuvenation?

The participants were made to start by cultivating loving kindness/compassion for themselves because then, it is easier to have loving kindness for others. Secondly, cultivate loving kindness for someone that they respect and admire, such as a mentor or spiritual advisor. Thirdly, cultivate loving kindness to a friend, a neutral person, and then to someone that they find challenging.

Loving-kindness meditation: The participants were taught to start by practicing mindful breathing. Notice what is happening in terms of their thoughts, feeling or body sensations. Further, following instructions were given:

“Loving kindness meditation is primarily about connecting to the intention of wishing ourselves or others happiness. Now, bring to mind someone that you look up to and have positive feelings toward. It could be someone that is like a mentor or spiritual advisor, teacher, or guide. Notice any feelings that come up as you bring this person to mind. Bring your attention to the area around your heart and notice any sensations there, if any. Now, imagine yourself sending well wishes to this person, using the following statements: “May you be safe. May you be happy. May you be healthy. May you live with ease”. Repeat these statements a few times. In turn, imagine this person sending well wishes back to you: “May you be safe. May you be happy. May you be healthy. May you live with ease”. Repeat these statements a few times. And now, you can offer these well-wishes to yourself: “May I be safe. May I be happy. May I be healthy. May I live with ease.” Repeat these statements a few times. Now offer these well wishes to everyone you

know. And eventually, you can offer these well wishes to everyone on the planet. Bring your attention back to your breath and when ready, gently open your eyes."

EIGHT SESSION: During the final session, the significance of a support network and the necessity of consistent practice to prevent relapse were explained to the participants. Participants were encouraged to realise that recovery is a lifelong struggle and that dedication and commitment are crucial. All the core concepts covered in previous sessions were brushed up and summarized for the participants to have a clear understanding of how to implement them together in their lives. The goals of all the previous sessions were revisited, in order to remind the participants, the reason of joining the intervention and reinforce their motivation for continuing the practice.

A concluding meditation was practised to give the participants the opportunity to reflect on their meditation over past sessions.
The participants were thanked for their participation and sincere disclosure of personal information and encourages to daily continue with all the practices taught throughout the eight sessions.

Post-test phase:

Post the completion of the 8th session, the participants were re-evaluated for alexithymia, coping styles and cravings. They were thanked for their active participation in the study and any doubt or questions were addressed. They were informed about their right to obtain the results of the study, should they ask for it.

SESSION PLAN- CONTROL GROUP

PRE-TEST PHASE: INTRODUCTORY SESSION:

- Participants were explained the aims and objectives of the study.
- Informed consent was taken.
- Participants were informed regarding the voluntary nature of the study and their right to withdraw from the study at any given point of time.

They were told about the future implications of the study and their right to ask for results of the study if they wished to. Participants were also informed regarding the active nature of the intervention to be used in the study.

- Researcher focused on building rapport with the participants.
- Socio-demographic Performa was filled.
- Detailed case history of the participants with details of substance used, first intake, quantity, frequency, modes of administration, withdrawal symptoms, changes in use pattern, treatment history, family history of substance use, triggers etc. was taken.
- They were further evaluated on their coping skills using Brief COPE; alexithymia using Toronto Alexithymia Scale; and craving using 3-item Craving Scale.

POST-TEST PHASE

Participants were re-evaluated on alexithymia, craving and coping styles after 3 months of baseline assessment. They were thanked for their active participation in the study. Any doubts that they may have had throughout the study were cleared. They were informed about their right to obtain the results of the study, should they ask for it.

OUTCOME

Mindfulness based relapse prevention has been considered as one of the most recent effective interventions for substance use disorders. The present study help us focus on how mindfulness based relapse prevention works upon emotional difficulties, cravings and coping styles of patients with substance use disorder. The findings of the present study aid to enrich the existing fund of knowledge regarding this important domain. The practical implications of the findings would help in more efficient planning of rehabilitation programmes for substance use patients. It will also aid in highlighting the specific target area to aid towards better relapse rates.

STATISTICAL ANALYSIS

Data will be described in terms of range; mean ±standard deviation (± SD), median, frequencies (number of cases) and relative frequencies (percentages) as appropriate. To determine whether the data is normally distributed, a Kolmogorov-Smirnov test will be used. Comparison of quantitative variables between the study groups will be done using Student t-test and Mann Whitney U test for independent samples for parametric and non-parametric data respectively. For comparing categorical data, Chi square ($\chi 2$) test will be performed and fisher exact test was used when the expected frequency is less than 5. Comparison of pre and post quantitative variables will be done using Paired t-test and Wilcoxon Rank test for independent samples for parametric and non-parametric data respectively.

A probability value (p value) less than 0.05 will be considered statistically significant. All statistical calculations will be done using (Statistical Package for the Social Science) SPSS 21version (SPSS Inc., Chicago, IL, USA) statistical program for Microsoft Windows.

OBSERVATIONS AND RESULTS

TABLE 1 shows the mean age and percentage of participants in the control and experimental group

		Experimental				Control				t-test	p-value
		N	%	Mean	SD	N	%	Mean	SD	-1.51	0.13 NS
Age group	20-29	10	33.3	34	9.67	8	26.7	38.1	11.17		
	30-39	13	43.3			12	40				
	40-49	5	16.7			3	10				
	50-60	2	6.7			7	23.3				

FIGURE 1 Percentage of participants in the Experimental and Control groups.

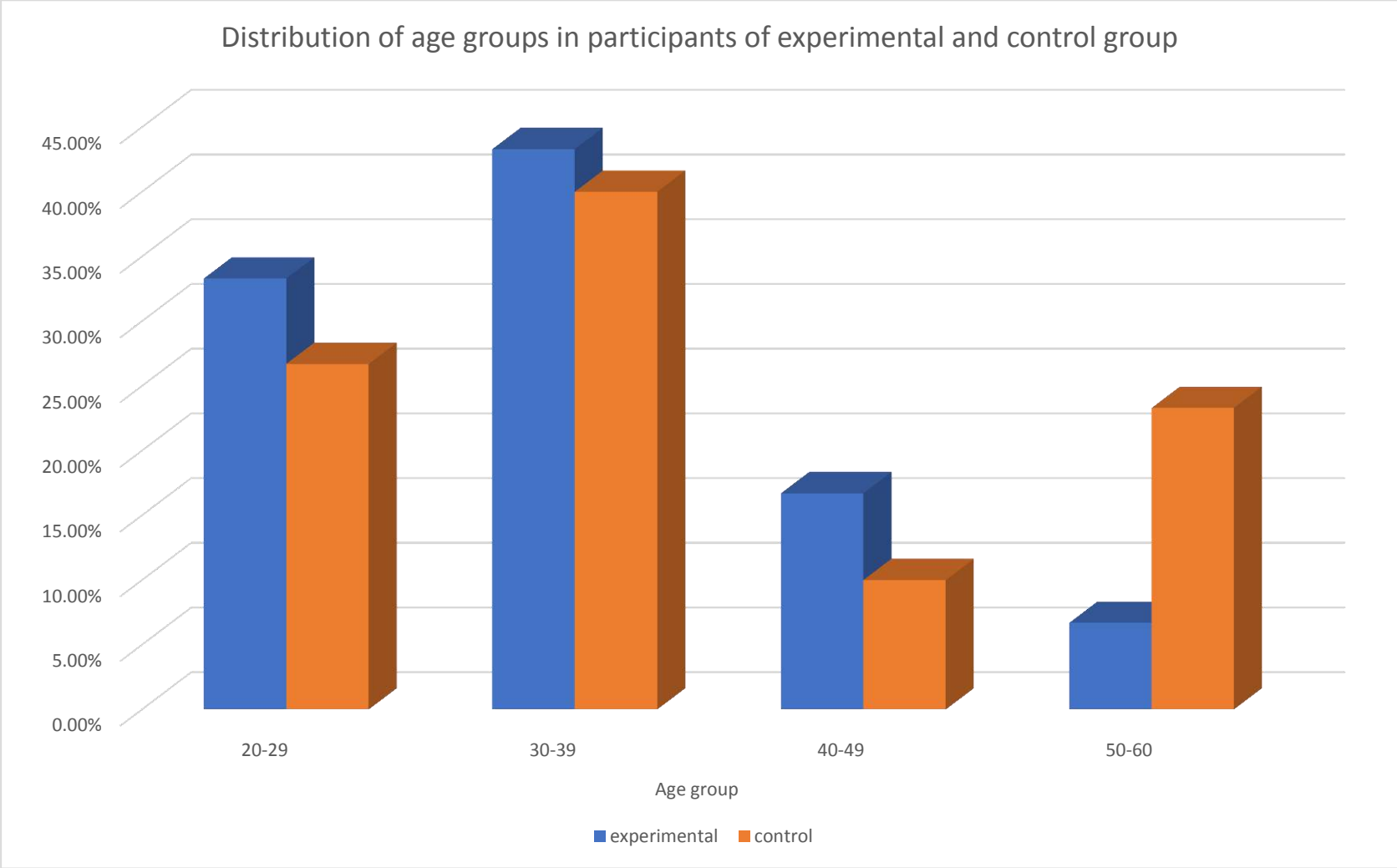


TABLE 2 Distribution of Participants based on Educational Qualification in the Experimental and Control group

		Experimental		Control		Total	t-test	p-value
EDUCATION	Illiterate	0	0%	0	0%	0	0.22	0.82 NS
	8th	3	10%	4	13.3%	7		
	10th	5	16.7%	10	33.3%	15		
	12TH	12	40%	9	30%	21		
	Graduate	7	23.3%	4	13.3%	11		
	Post-graduate	2	6.7%	4	13.3%	6		

(NS: Not Significant)

FIGURE 2 Distribution of Participants based on Educational Qualification in the Experimental and Control group

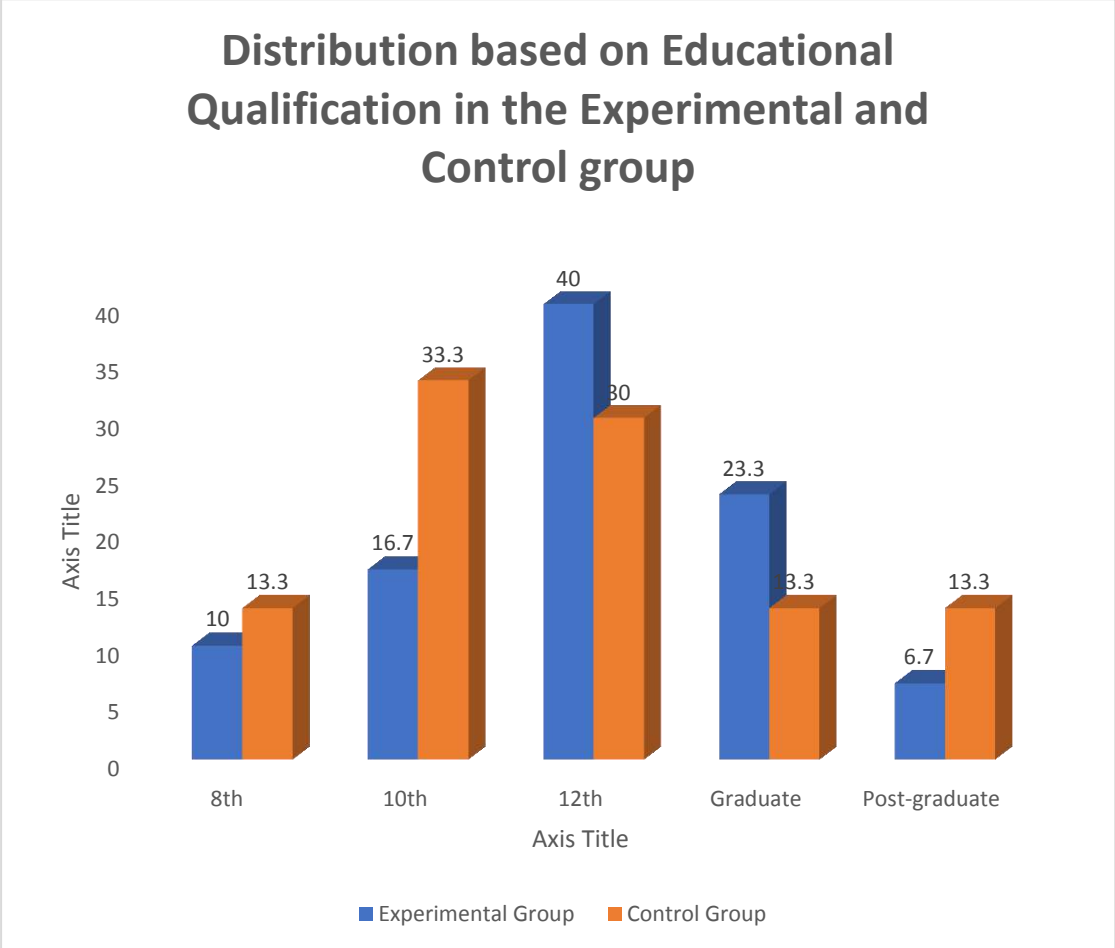


TABLE 3 Distribution of Participants based on Occupation in the Experimental and Control group

		Experimental		Control		Total	t-test	p-value
OCCUPATION	Farmer/ Clerical/ Shop owner	14	46.7%	14	46.7%	0	0.73	0.23 NS
	Semi-skilled/ Skilled worker	1	3.3%	2	6.7%	7		
	Unemployed	2	6.7%	6	20%	15		
	Other	1	3.3%	0	0%	21		
	Professional	9	30%	6	20%	11		
	Student	3	10%	2	6.7%	6		

FIGURE 3 Distribution of Participants based on Occupation in the Experimental and Control group

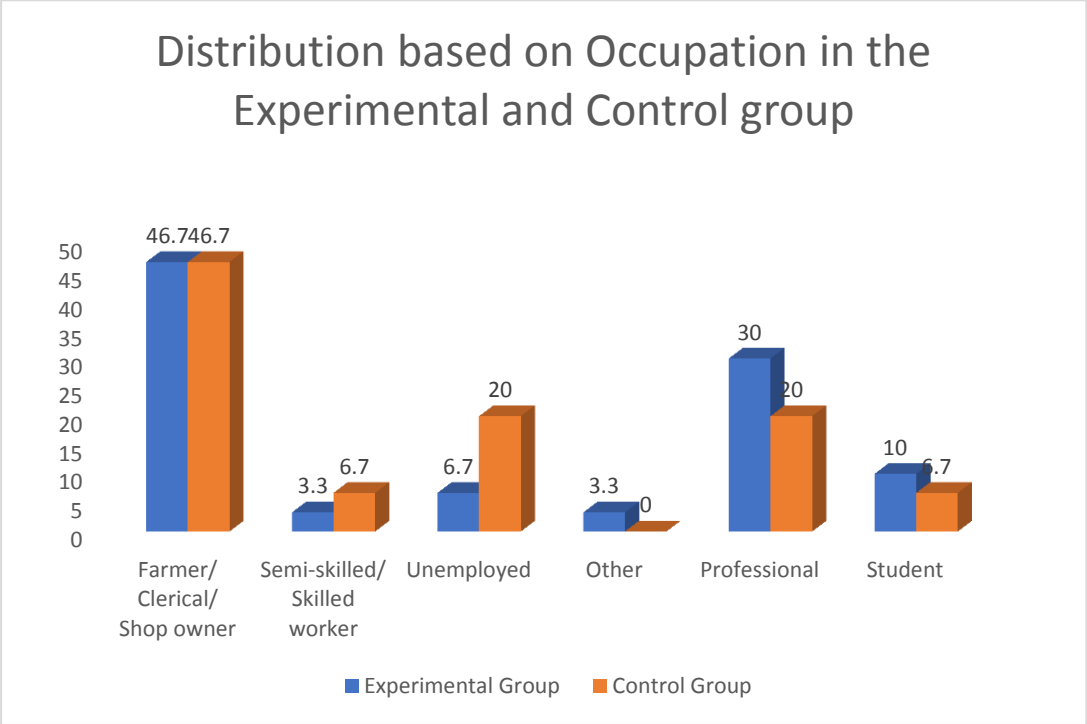


TABLE 4 Distribution of the background of the participants in the Experimental and Control group

		EXPERIMENTAL		CONTROL		Chi-Square	p value
ADDRESS	URBAN	16	53.3%	14	46.7%	0.27	0.60 NS
	RURAL	14	46.7%	16	53.3%		

FIGURE 4 Distribution of the background of the participants in the Experimental and Control group

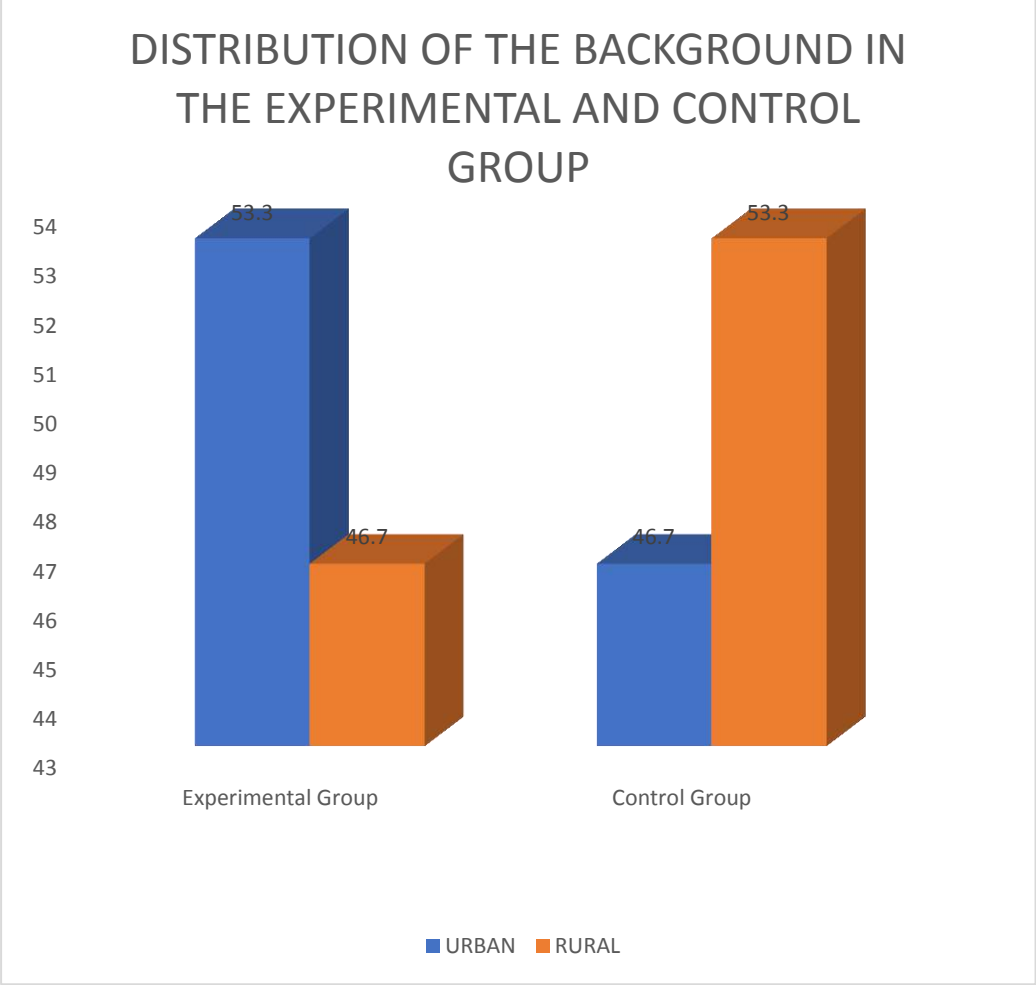


TABLE 5 Distribution of the Family type of the participants in the Experimental and Control groups

		EXPERIMENTAL		CONTROL		Chi-Square	p value 0.42
FAMILY TYPE	NUCLEAR	10	33.3%	13	43.3%	0.63	NS
	JOINT	20	66.6%	17	56.7%		

FIGURE 5 Distribution of the Family type of the participants in the Experimental and Control groups

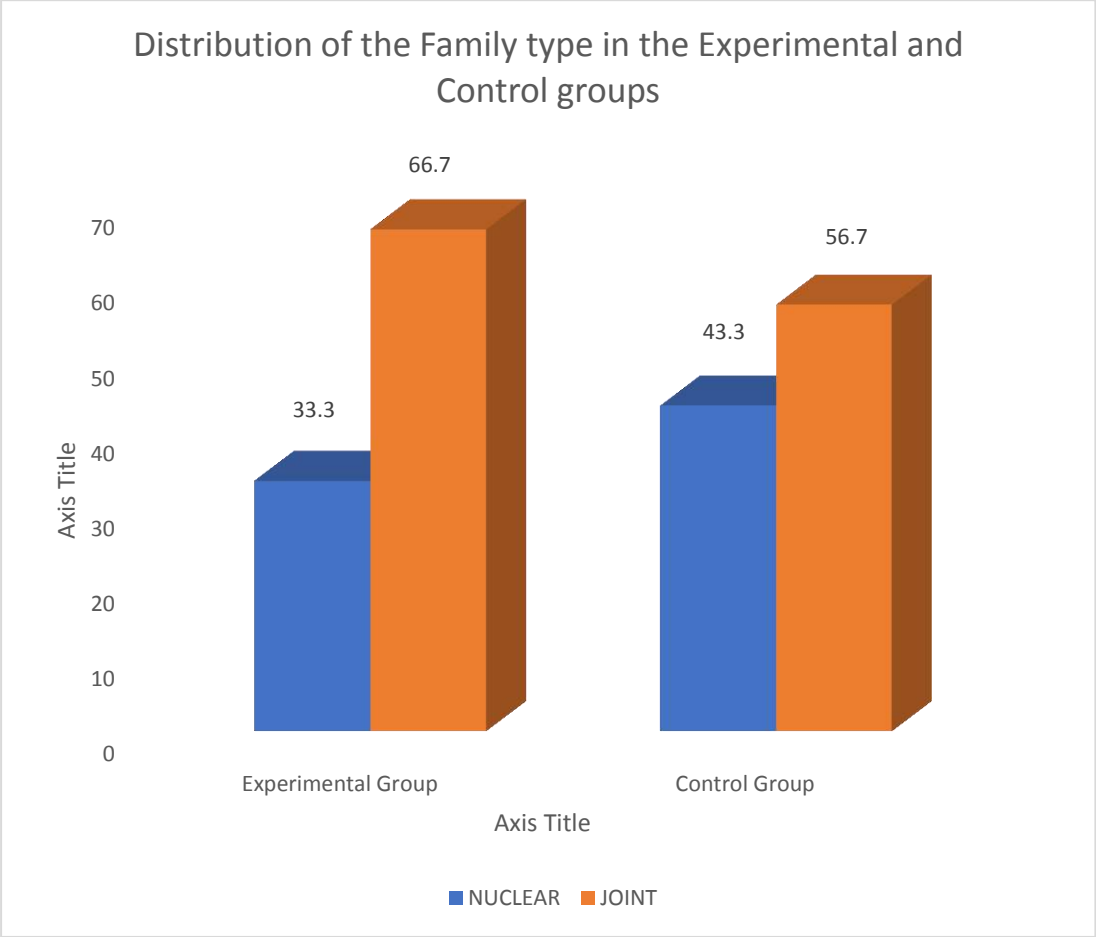


TABLE 6 Distribution of the Socio-Economic Status of the participants in the Experimental and Control group

		Experimental		CONTROL		Chi-Square	p value
SES	UPPER	29	96.7%	27	90%	1.07	0.30 NS
	LOWER	1	3.3%	3	10%		

FIGURE 6 Distribution of the Socio-Economic Status of the participants in the Experimental and Control group

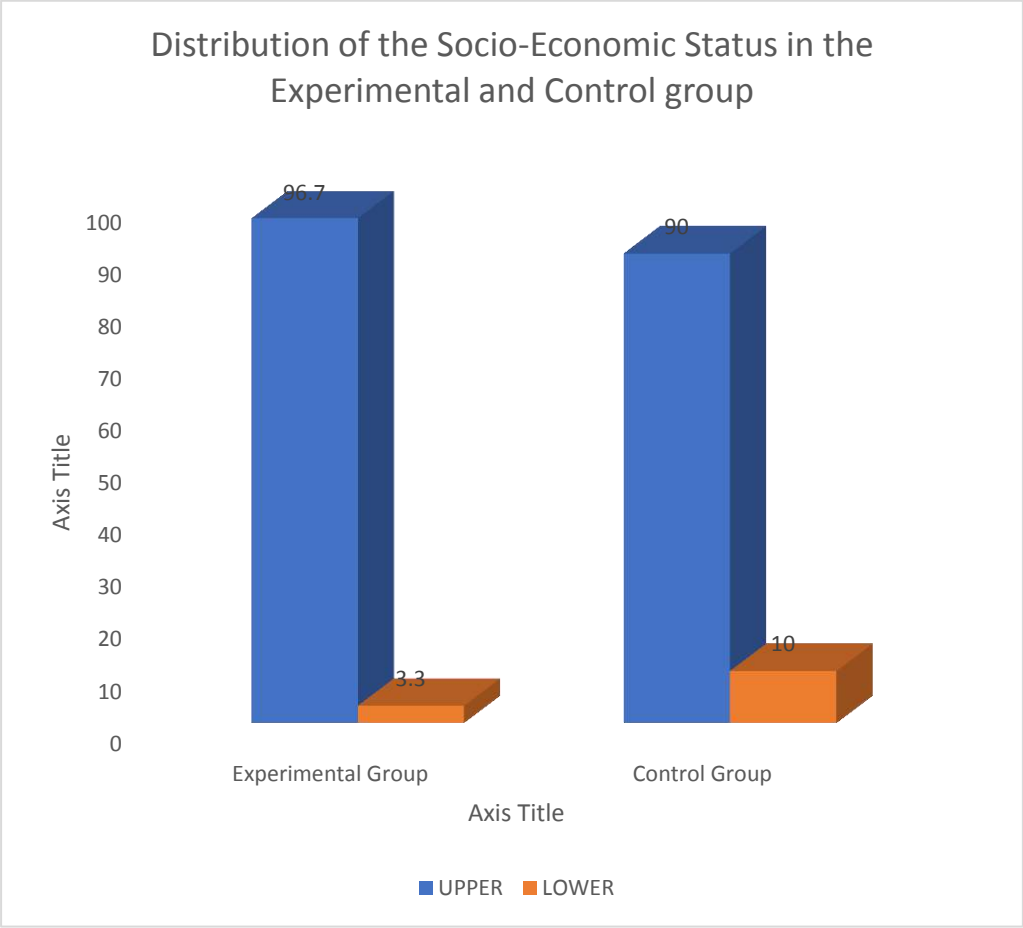


TABLE 7 Distribution of Type of Substance used in the participants in the experimental and control group

		Experimental		Control		t-test	p-value
TYPE OF SUBSTANCE	Raw Opium	19	63.3%	20	66.7%	0.23	0.40
	Heroine	10	33.3%	9	30%		
	Medicines	1	3.3%	1	3.3%		

FIGURE 7 Distribution of Type of Substance used in the participants in the experimental and control group

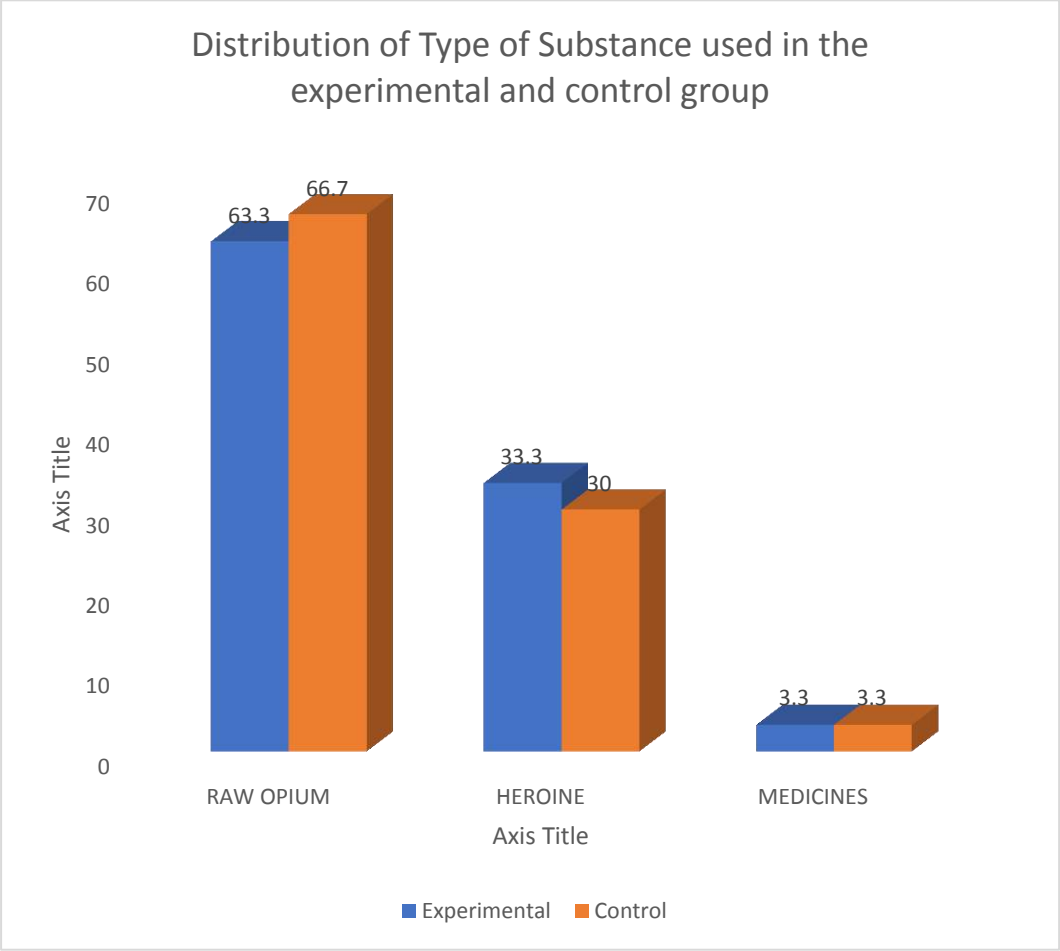


TABLE 8 Distribution of Total Duration of substance use in participants of experimental and control group

	YEARS	EXPERIMENTAL		CONTROL		TOTAL	Chi-sqaure	p value
TOTAL DURATION	<1	5	16.7%	6	20%	11	3.86	0.56 NS
	1-5	16	53.3%	9	30%	25		
	5-10	4	13.3%	8	26.7%	12		
	10- 20	3	10%	4	13.3%	7		
	20-30	1	3.3%	2	6.7%	3		
	30-40	1	3.3%	1	3.3%	2		

FIGURE 8 Distribution of Total Duration of substance use in participants of experimental and control group

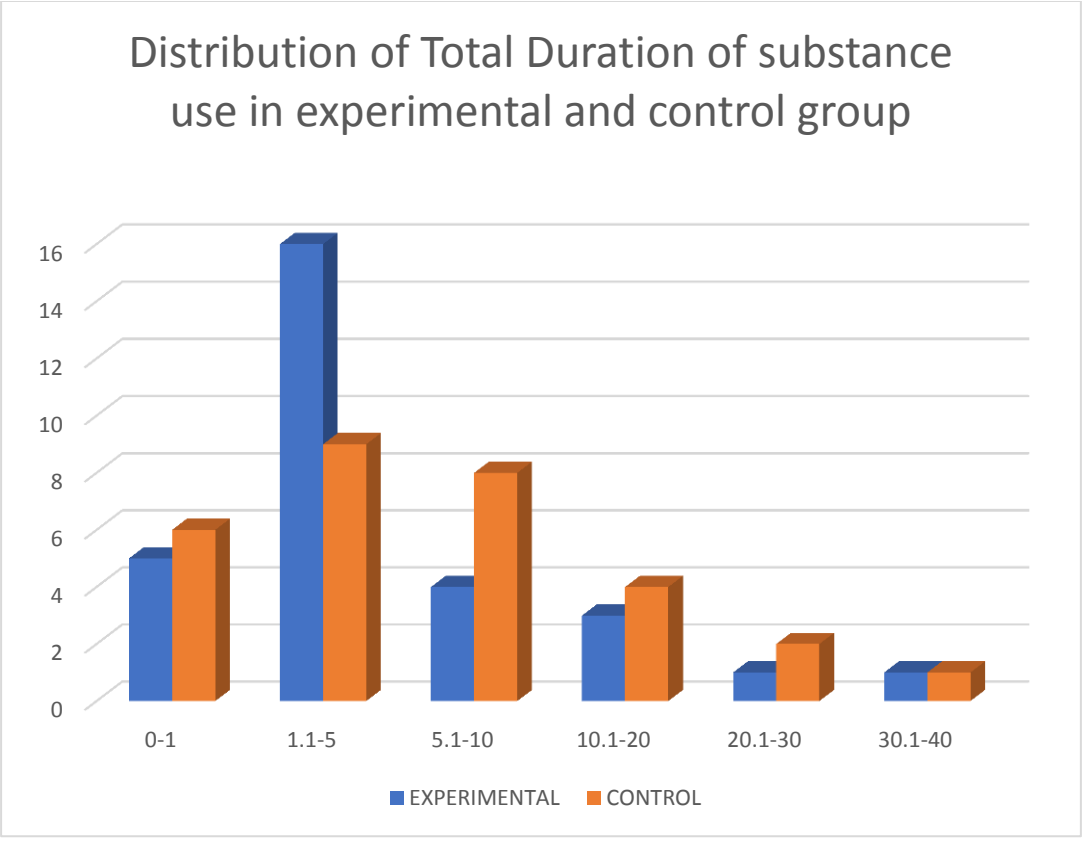


Table 9 Comparison of pre- and post-intervention scores on craving in the participants of experimental group

CRAVING	Mean	Standard Deviation	z-test	Significance level (2 tailed)
PRE	6.22	2.10	-4.43	.00
POST	2.90	1.81		

FIGURE 9 Comparison of pre- and post-intervention scores on craving in the participants of experimental group

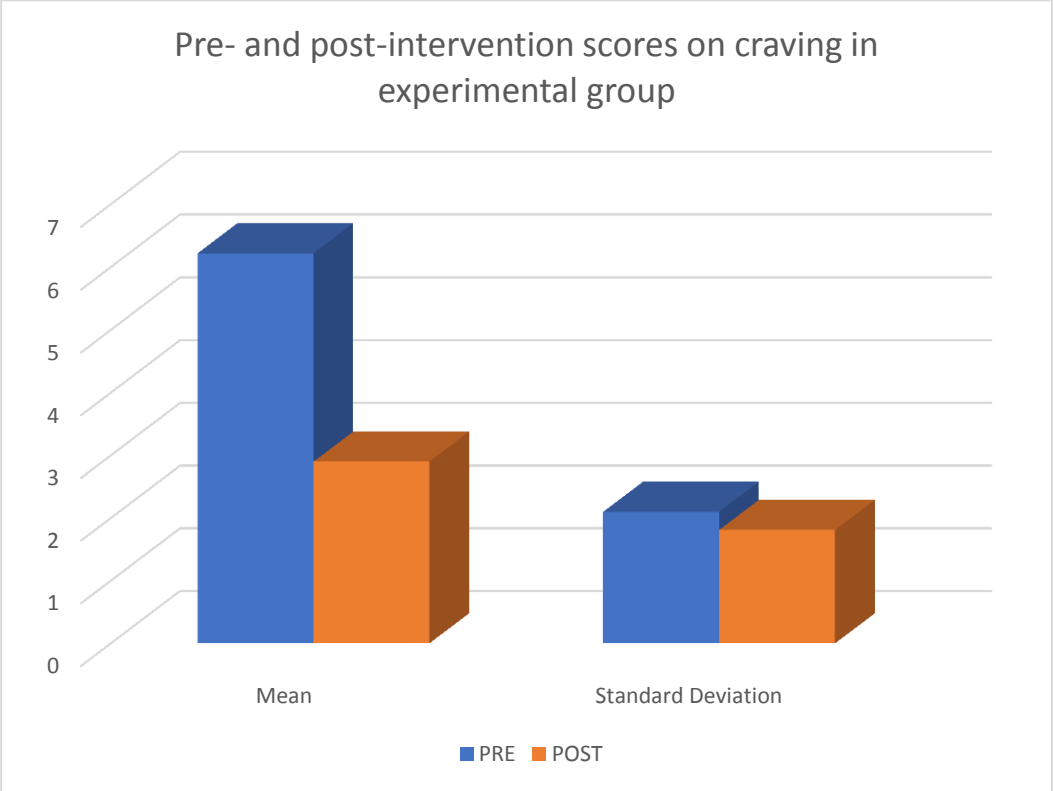


TABLE 10- Comparison of post- intervention and follow up scores on craving in participants of experimental group

CRAVING	Mean	Standard Deviation	z-test	Significance level (2 tailed)
POST-	2.90	1.81	-2.21	.02
FOLLOW UP	3.73	2.43		

FIGURE 10 Comparison of post- intervention and follow up scores on craving in participants of experimental group

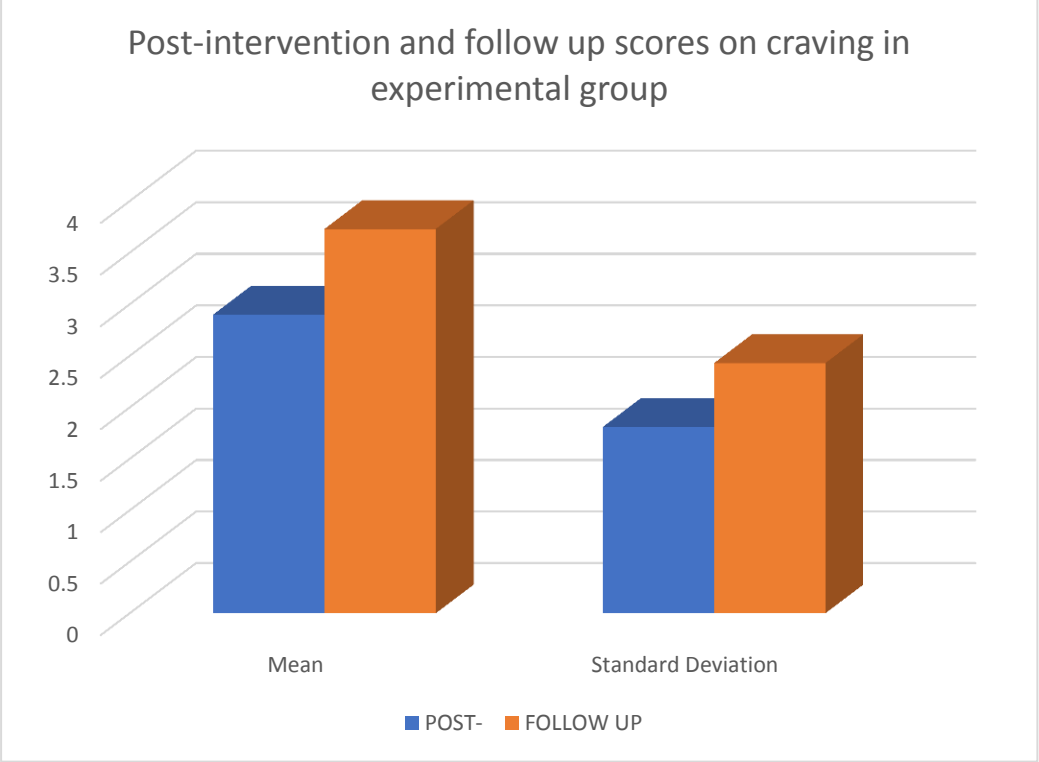


TABLE-11- Comparison of pre- and post- intervention scores on difficulty describing feelings (Alexithymia sub-scale) in participants of experimental group

DIFFICULTY DESCRIBING FEELINGS	Mean	Standard Deviation	t-test	Significance level (2 tailed)
PRE	22.57	4.66	7.064	.00
POST	17.43	5.00		

FIGURE 11- Comparison of pre- and post- intervention scores on difficulty describing feelings (Alexithymia sub-scale) in participants of experimental group

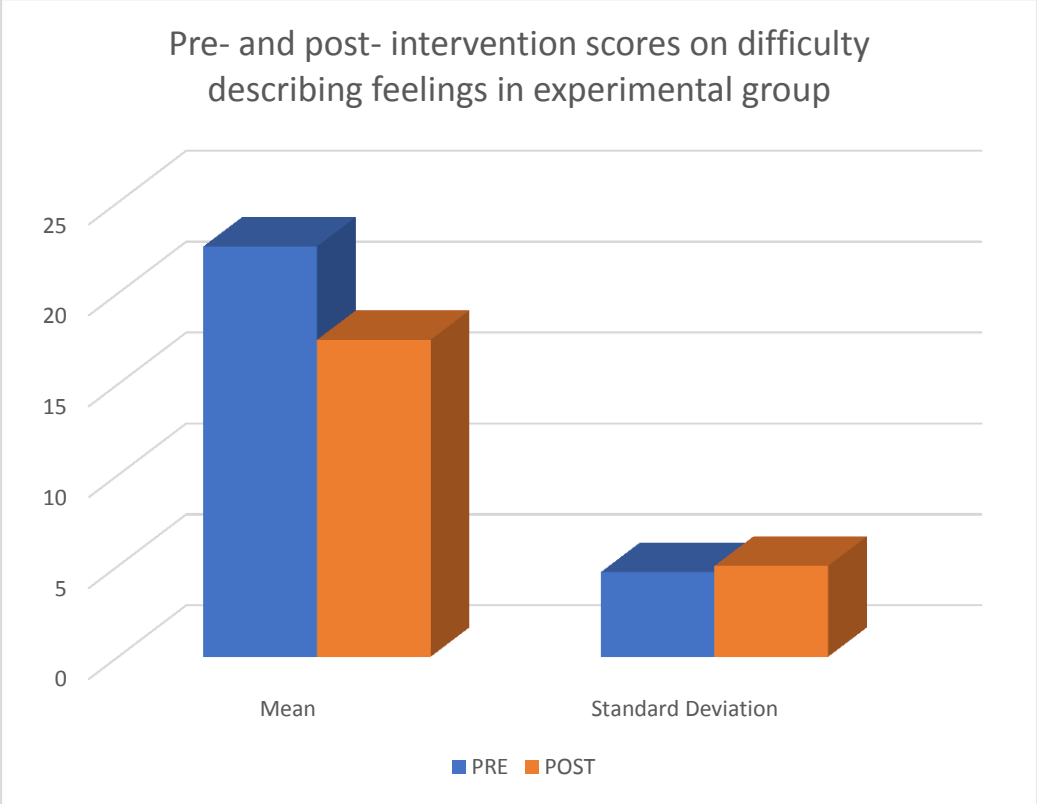


TABLE 12- Comparison of post-intervention and follow up scores on difficulty describing feelings (Alexithymia sub-scale) in participants of experimental group

DIFFICULTY DESCRIBING FEELINGS	Mean	Standard Deviation	t-test	Significance level (2 tailed)
POST	17.43	5.00	1.44	.15
FOLLOW UP	16.63	4.81		

FIGURE 12- Comparison of post-intervention and follow up scores on difficulty describing feelings (Alexithymia sub-scale) in participants of experimental group

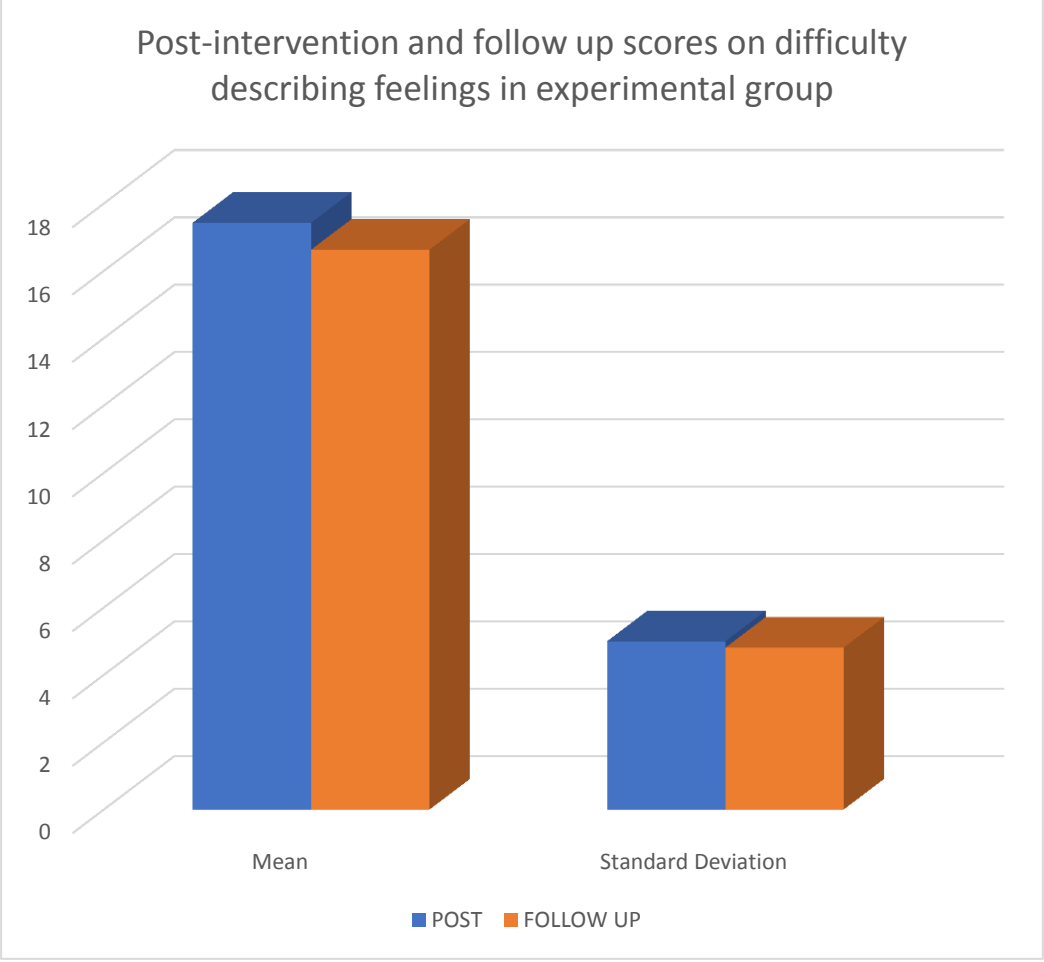


TABLE 13- Comparison of pre- and post- intervention scores on difficulty identifying feelings (Alexithymia sub-scale) in participants of experimental group

DIFFICULTY IDENTIFYING FEELINGS	Mean	Standard Deviation	t-test	Significance level (2 tailed)
PRE	17.13	3.85	3.44	.00
POST	14.83	4.18		

FIGURE 13- Comparison of pre- and post- intervention scores on difficulty identifying feelings (Alexithymia sub-scale) in participants of experimental group

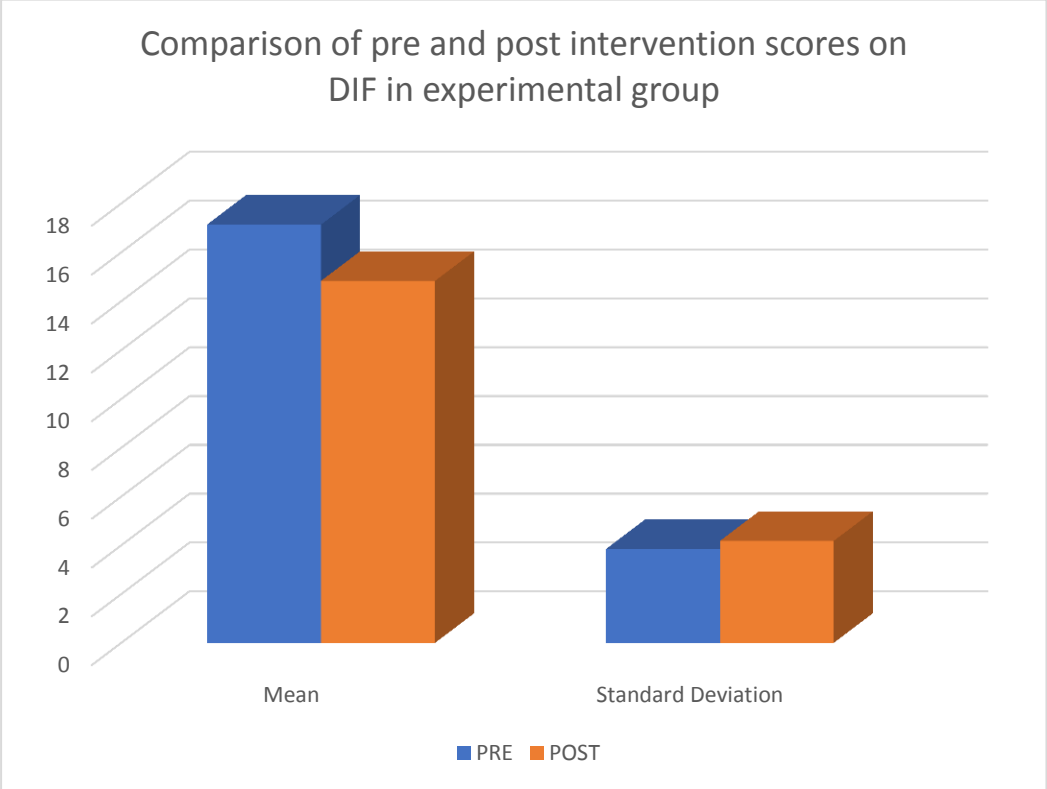


TABLE 14- Comparison of post-intervention and follow up scores on difficulty identifying feelings (Alexithymia sub-scale) in participants of experimental group

DIFFICULTY IDENTIFYING FEELINGS	Mean	Standard Deviation	t-test	Significance level (2 tailed)
POST	14.83	4.18	2.23	.03
FOLLOW UP	13.83	4.05		

FIGURE 14- Comparison of post-intervention and follow up scores on difficulty identifying feelings (Alexithymia sub-scale) in participants of experimental group

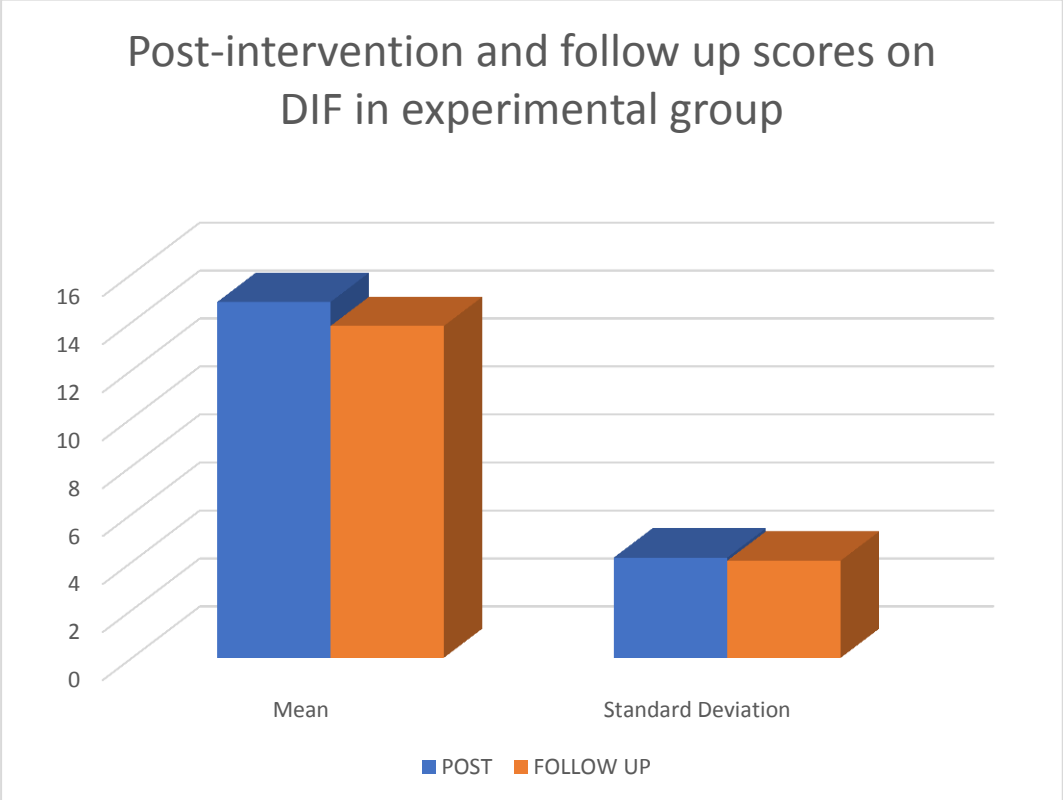


TABLE 15- Comparison of pre- and post- intervention scores on external orientation (Alexithymia sub-scale) in participants of experimental group

EXTERNAL ORIENTATION	Mean	Standard Deviation	t-test	Significance level (2 tailed)
PRE	24.10	4.19	7.03	.00
POST	17.93	5.62		

FIGURE 15- Comparison of pre- and post- intervention scores on external orientation (Alexithymia sub-scale) in participants of experimental group

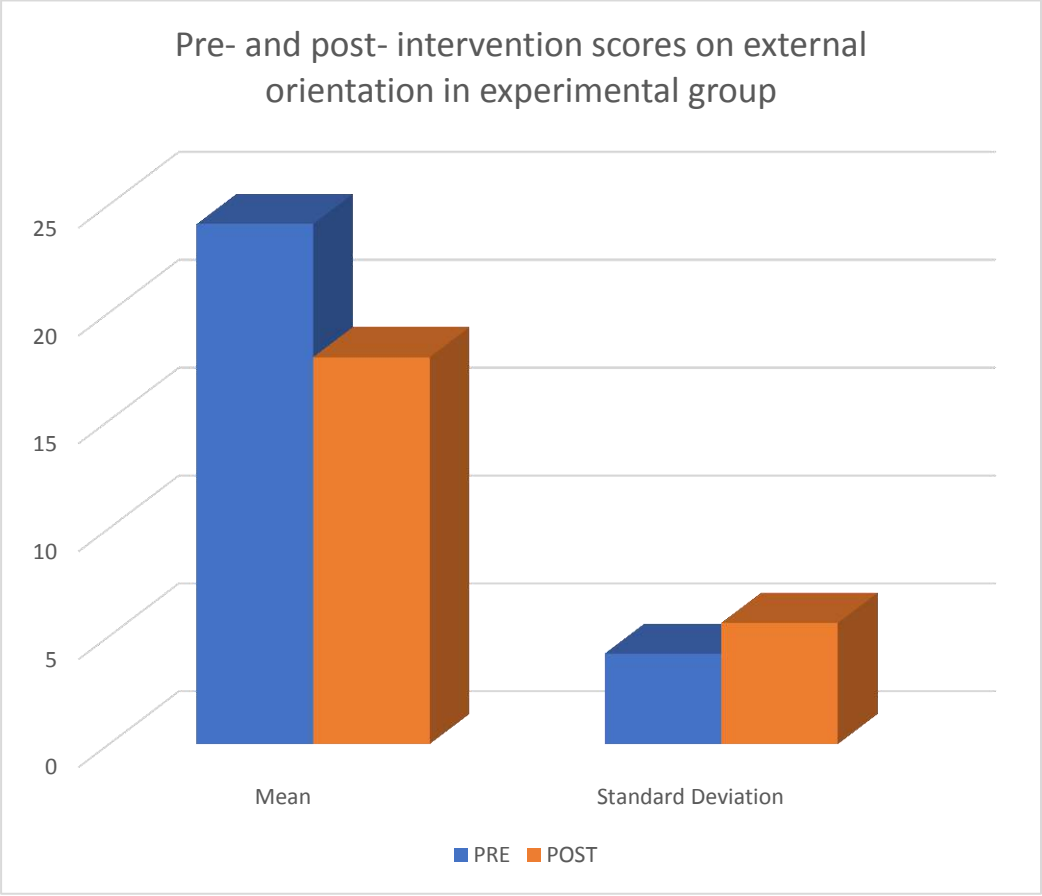


TABLE 16- Comparison of post-intervention and follow up scores on external orientation in participants of experimental group

EXTERNAL ORIENTATION	Mean	Standard Deviation	t-test	Significance level (2 tailed)
POST	17.93	5.62	.886	.38
FOLLOW UP	17.40	5.75		

FIGURE 16- Comparison of post-intervention and follow up scores on external orientation in participants of experimental group

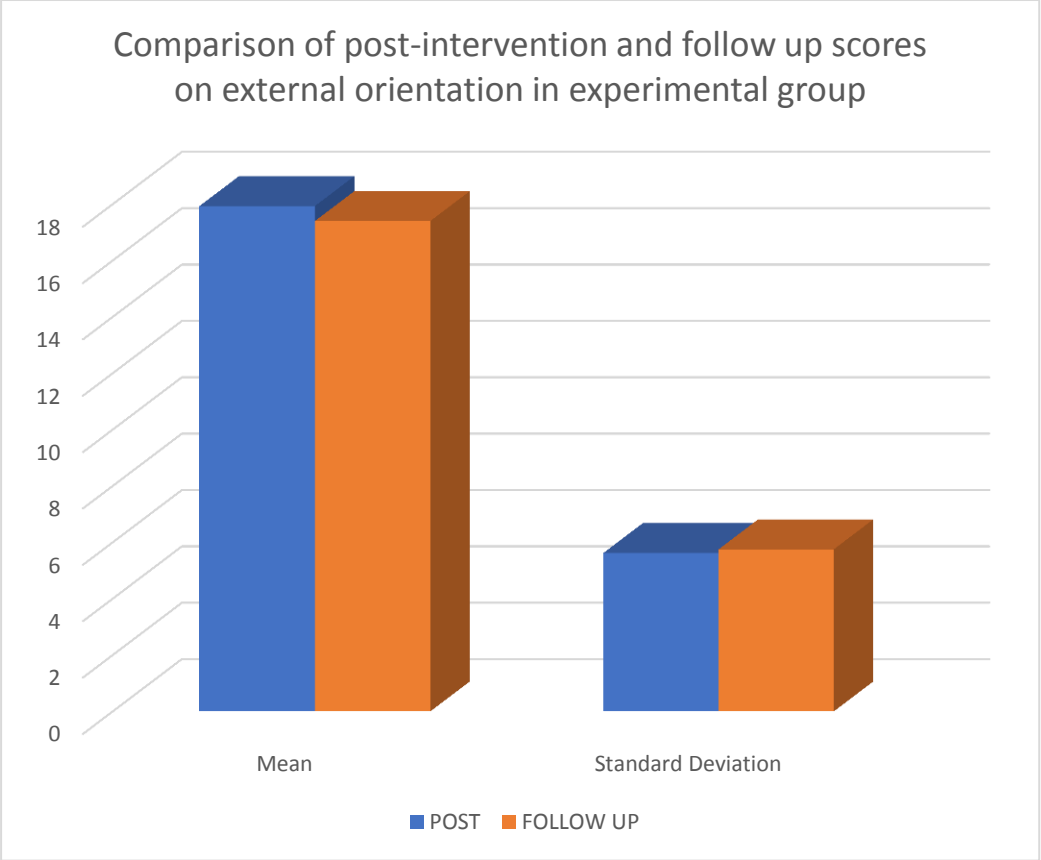


TABLE 17- Comparison of pre- and post- intervention scores on alexithymia (total) in participants of experimental group

ALEXITHYMIA (TOTAL)	Mean	Standard Deviation	t-test	Significance level (2 tailed)
PRE	63.80	10.31	7.22	.00
POST	50.20	13.42		

FIGURE 17- Comparison of pre- and post- intervention scores on alexithymia (total) in participants of experimental group

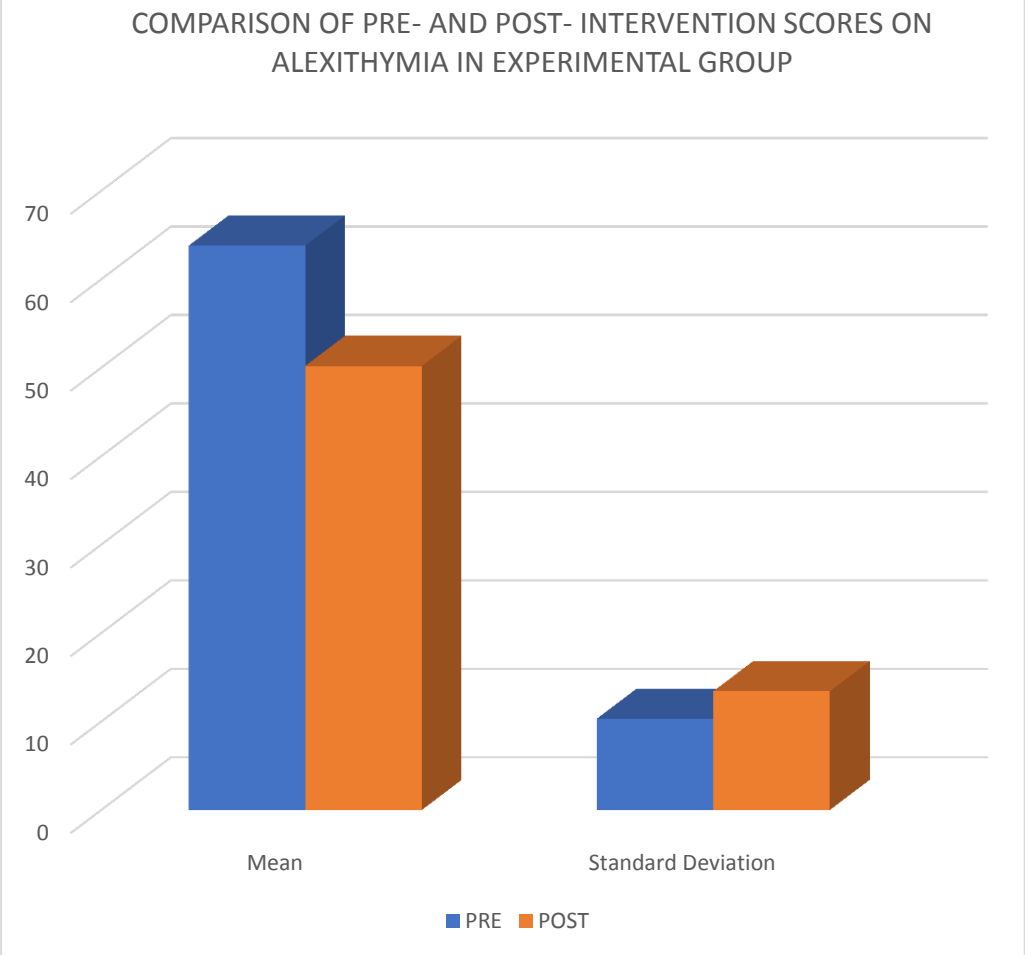


TABLE 18- Comparison of post-intervention and follow up scores on alexithymia (total) in participants of experimental group

ALEXITHYMIA (TOTAL)	Mean	Standard Deviation	t-test	Significance level (2 tailed)
POST	50.20	13.42	1.99	.05
FOLLOW UP	47.87	13.11		

FIGURE 18- Comparison of post-intervention and follow up scores on alexithymia (total) in participants of experimental group

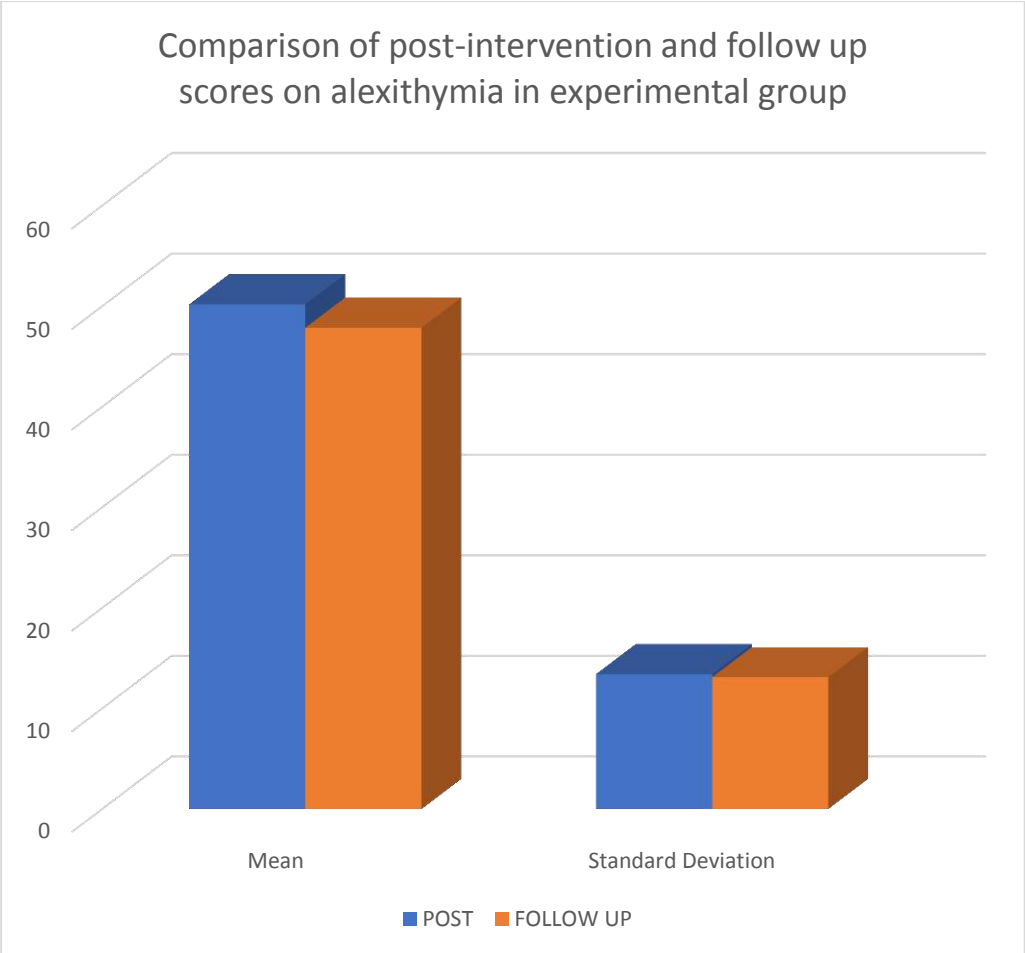


TABLE 19- Comparison of pre- and post- intervention scores on problem focused coping in participants of experimental group

PROBLEM FOCUSED COPING	Mean	Standard Deviation	t-test	Significance level (2 tailed)
PRE	20.23	5.04	-3.60	.001
POST	23.00	5.15		

FIGURE 19-Comparison of pre- and post- intervention scores on problem focused coping in participants of experimental group

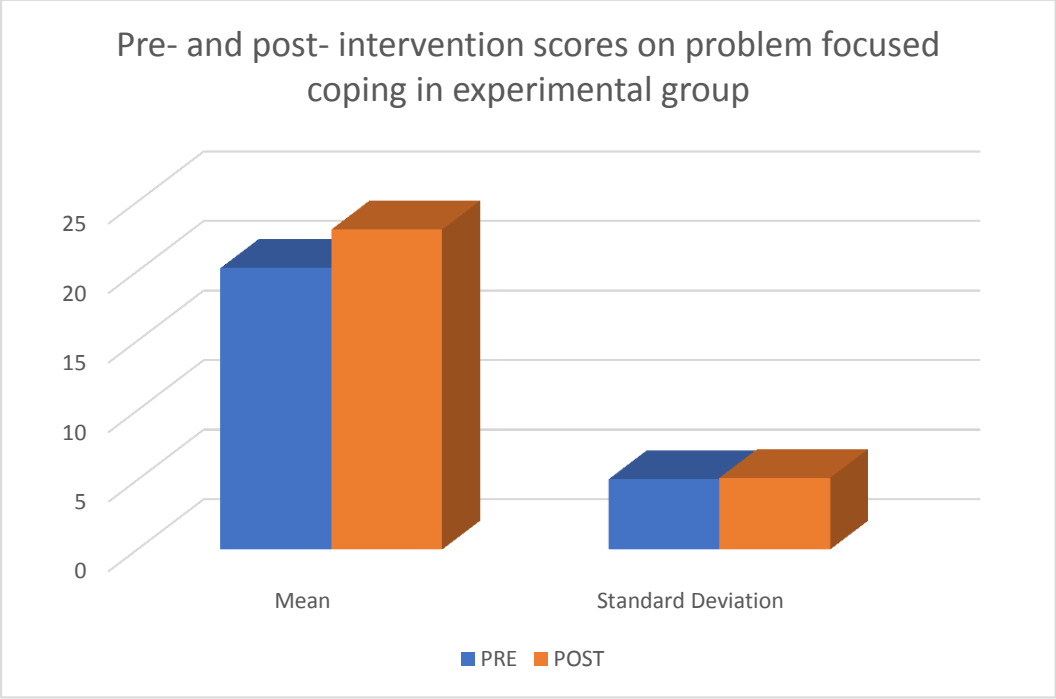


TABLE 20-Comparison of post-intervention and follow up scores on problem focused coping in participants of experimental group

PROBLEM FOCUSED COPING	Mean	Standard Deviation	t-test	Significance level (2 tailed)
POST	23.00	5.15	-.754	.45
FOLLOW UP	23.57	4.04		

FIGURE 20- Comparison of post-intervention and follow up scores on problem focused coping in participants of experimental group

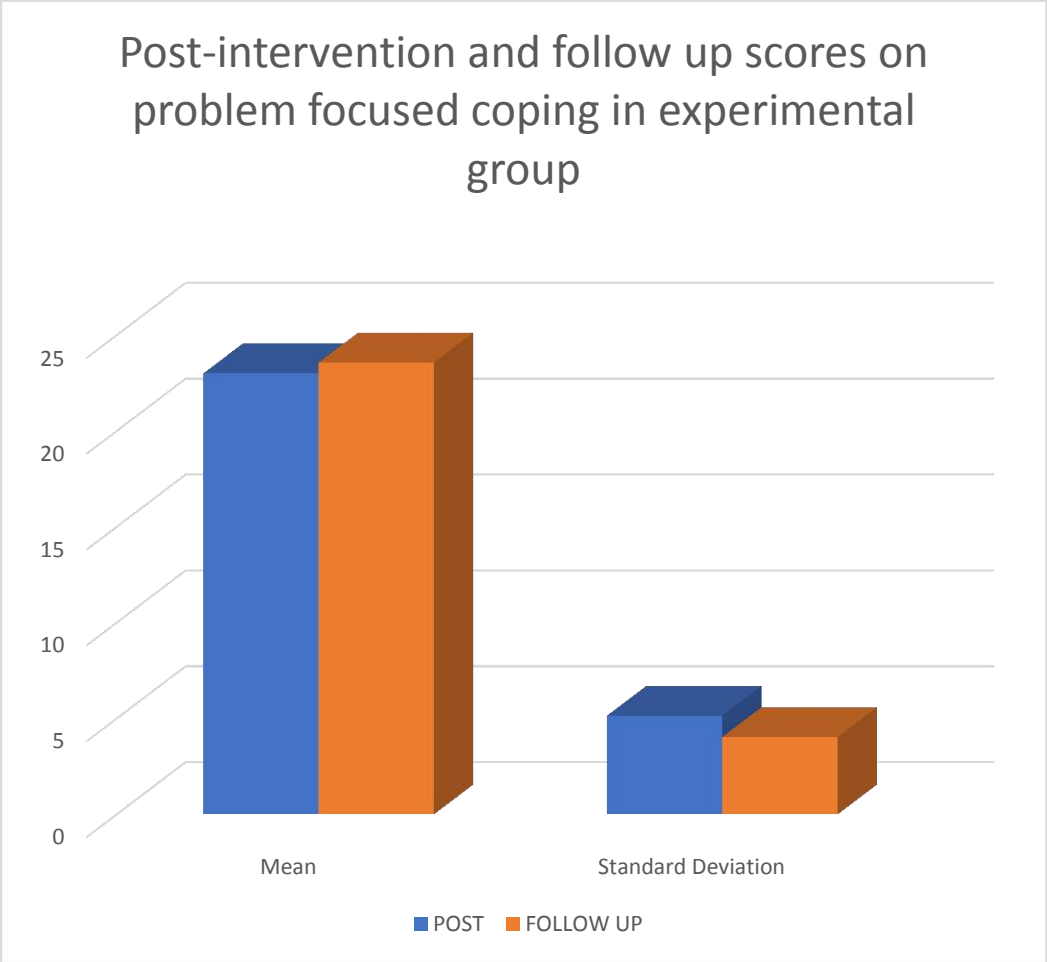


TABLE 21- Comparison of pre- and post- intervention scores on emotion focused coping in participants of experimental group

EMOTION FOCUSED COPING	Mean	Standard Deviation	t-test	Significance level (2 tailed)
PRE	29.37	7.36	.797	.43
POST	28.53	5.90		

FIGURE 21- Comparison of pre- and post- intervention scores on emotion focused coping in participants of experimental group

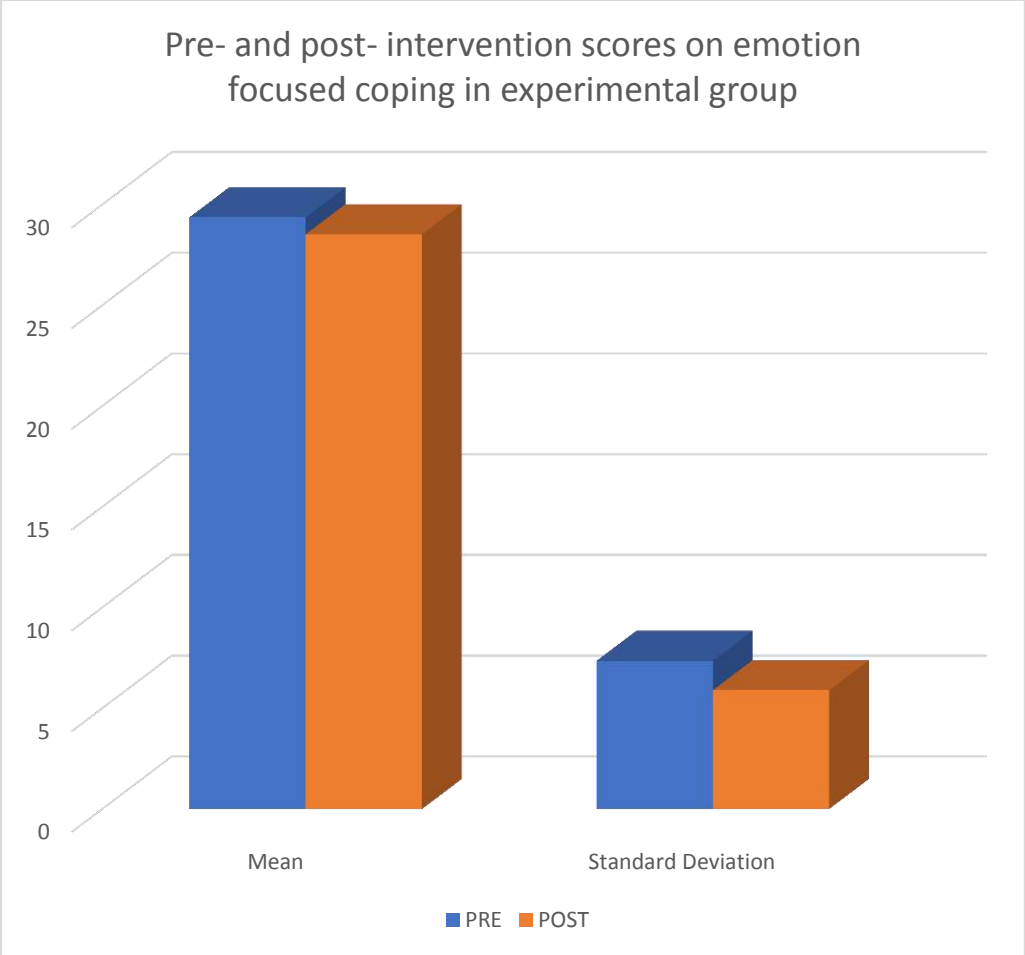


TABLE 22- Comparison of post-intervention and follow up scores on emotion focused coping in participants of experimental group

EMOTION FOCUSED COPING	Mean	Standard Deviation	t-test	Significance level (2 tailed)
POST	28.53	5.90	.303	.76
FOLLOW UP	28.23	5.83		

FIGURE 22- Comparison of post-intervention and follow up scores on emotion focused coping in participants of experimental group

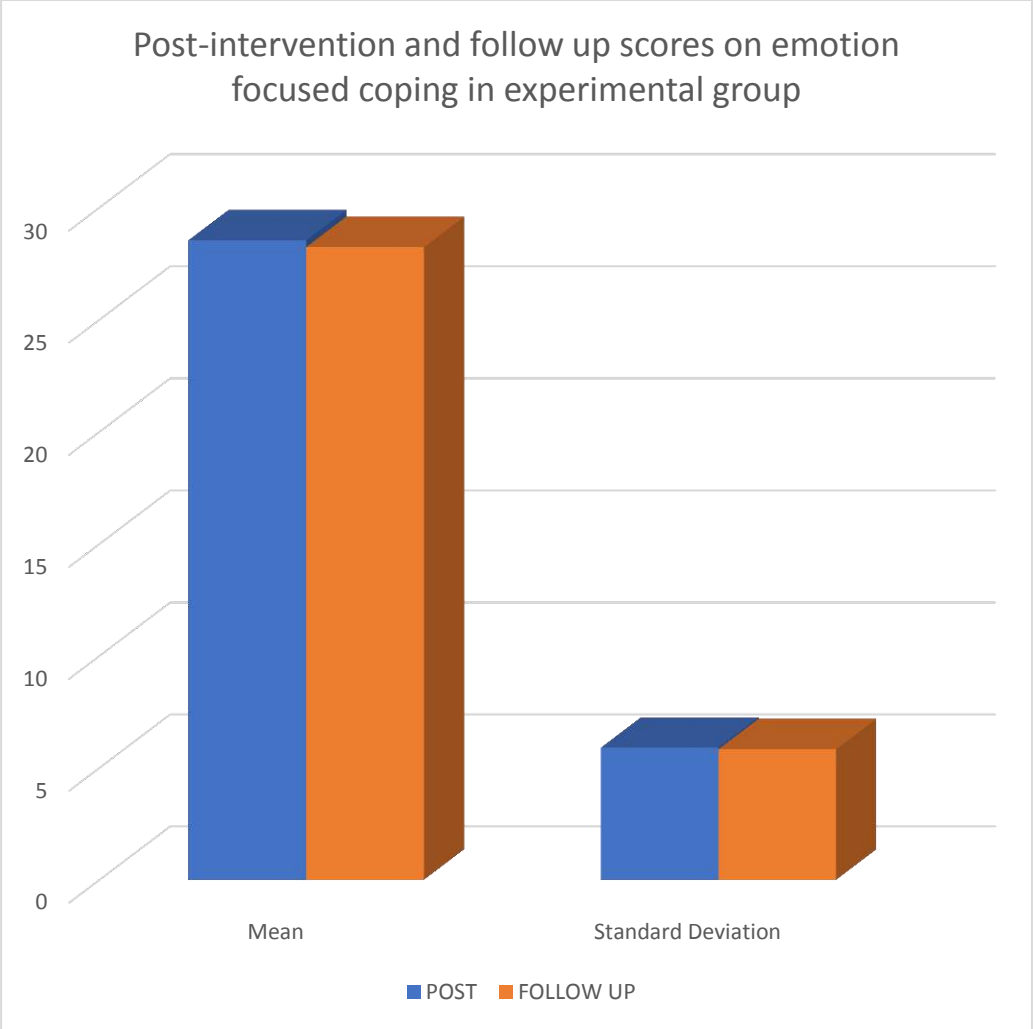


TABLE 23- Comparison of pre- and post- intervention scores on avoidance coping in participants of experimental group

AVOIDANCE COPING	Mean	Standard Deviation	z-test	Significance level (2 tailed)
PRE	21.97	4.255	-3.94	.00
POST	17.13	5.806		

FIGURE 23- Comparison of pre- and post- intervention scores on avoidance coping in participants of experimental group

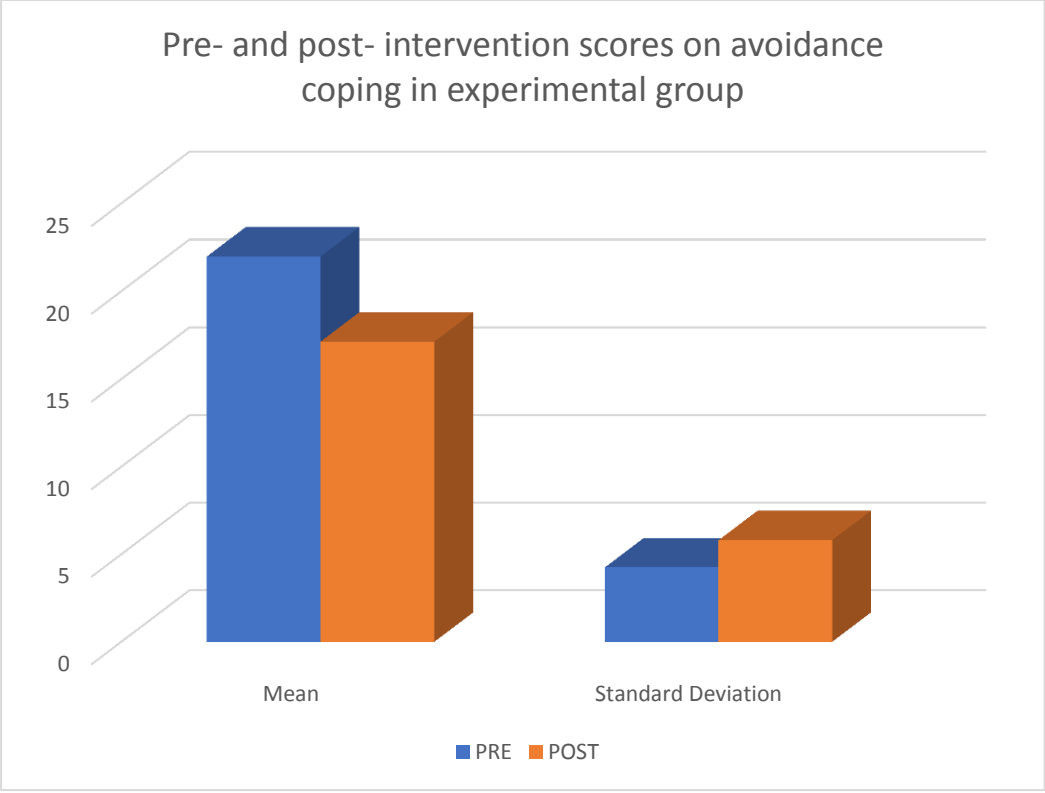


TABLE 24- Comparison of post-intervention and follow up scores on avoidance coping in participants of experimental group

AVOIDANCE COPING	Mean	Standard Deviation	z-test	Significance level (2 tailed)
POST	17.13	5.806	-.023	.90
FOLLOW UP	17.20	5.774		

FIGURE 24- Comparison of post-intervention and follow up scores on avoidance coping in participants of experimental group

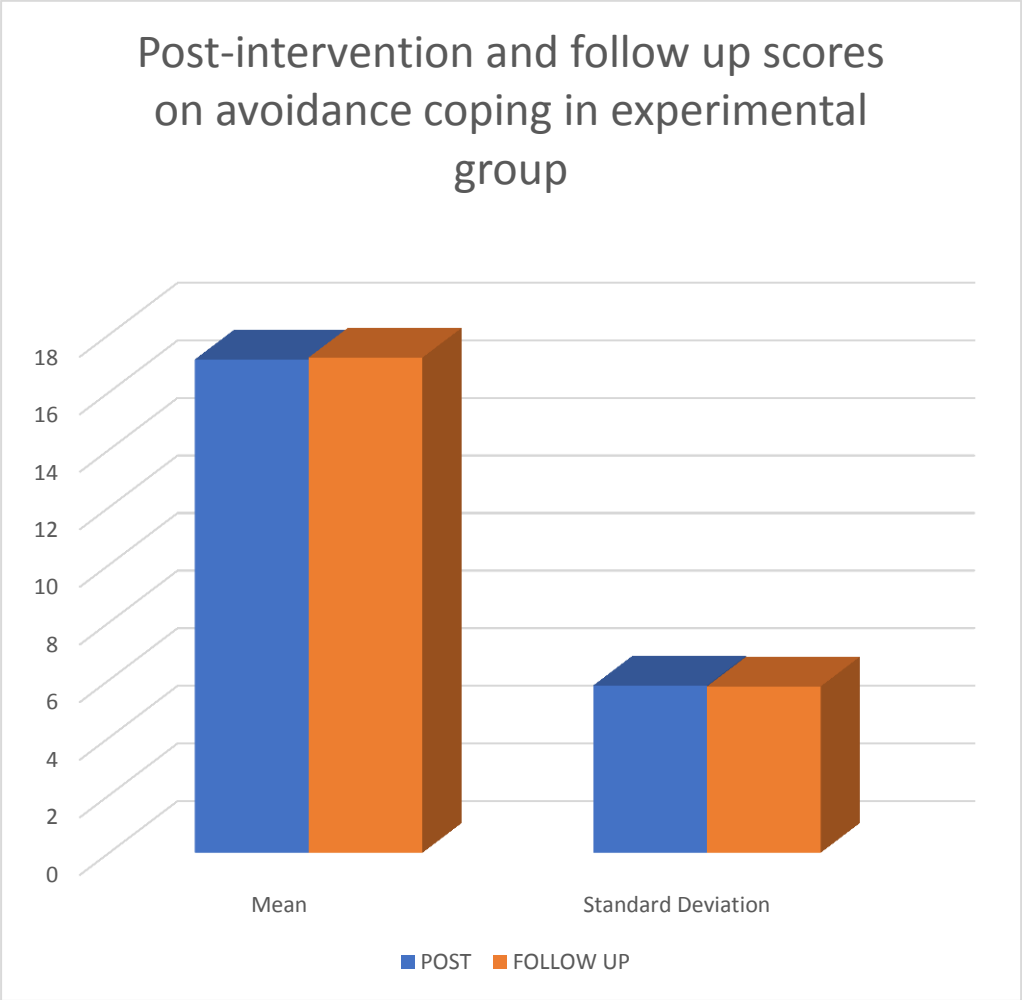


TABLE 25- Comparison of baseline and follow up scores on craving in participants of control group

CRAVING	Mean	Standard Deviation	z-test	Significance level (2 tailed)
BASELINE	5.43	2.06	-.137	.89
FOLLOW UP	5.34	2.64		

FIGURE 25- Comparison of baseline and follow up scores on craving in participants of control group

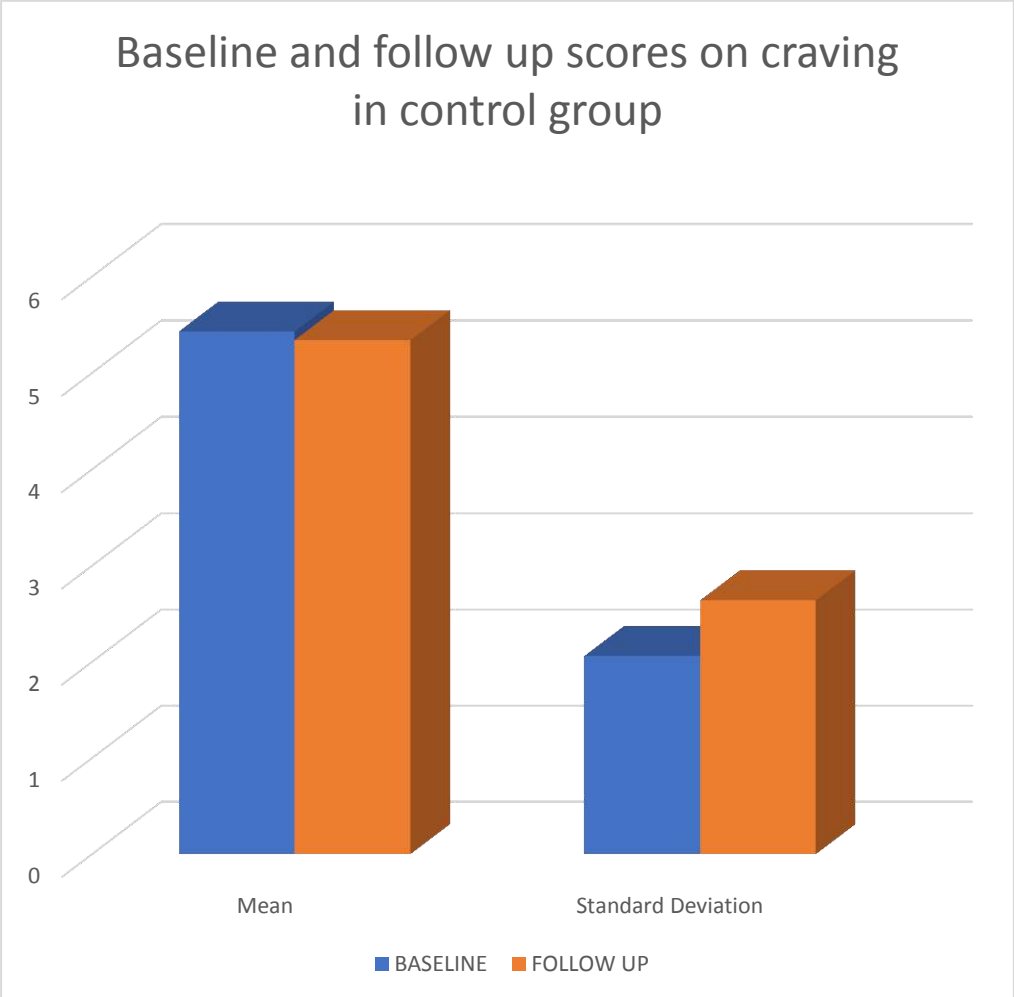


TABLE 26- Comparison of baseline and follow up scores on difficulty describing feelings (alexithymia sub-scale) in participants of control group

DIFFICULTY DESCRIBING FEELINGS	Mean	Standard Deviation	t-test	Significance level (2 tailed)
BASELINE	21.90	4.64	3.22	.05
FOLLOW UP	20.00	5.03		

FIGURE 26- Comparison of baseline and follow up scores on difficulty describing feelings (alexithymia sub-scale) in participants of control group

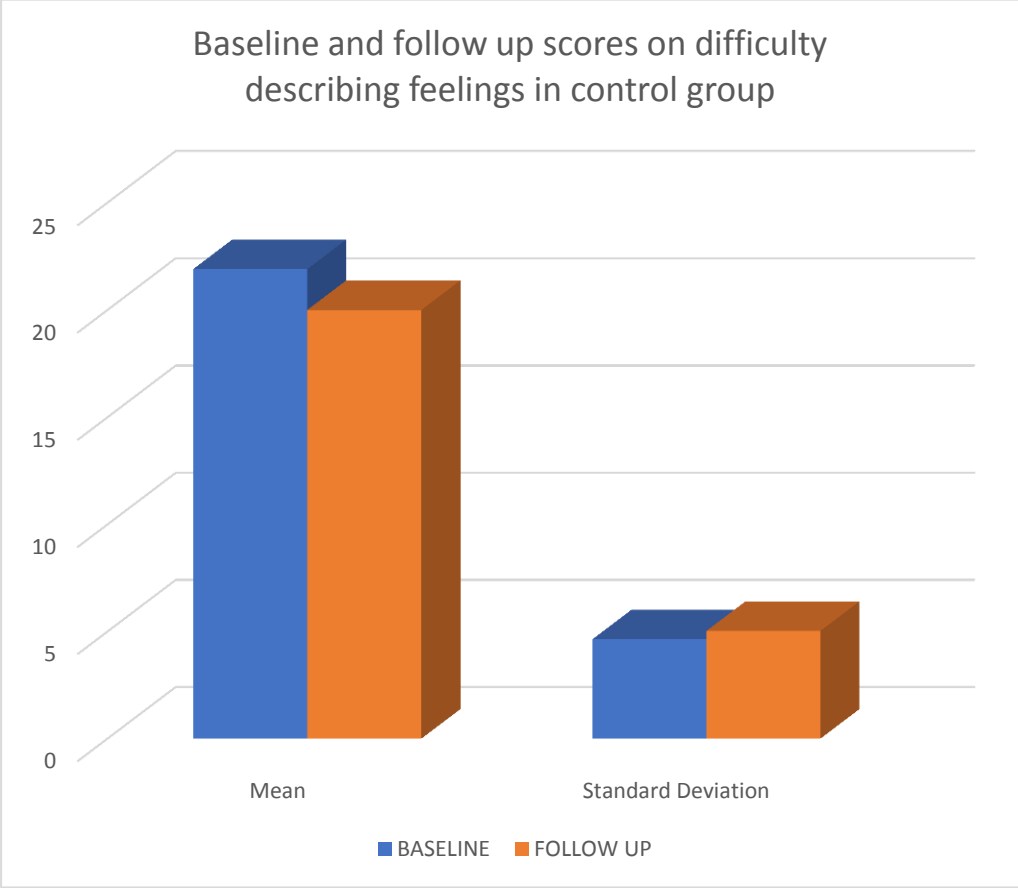


TABLE 27- Comparison of baseline and follow up scores on difficulty identifying feelings (alexithymia sub-scale) in participants of control group

DIFFICULTY INDENTIFYING FEELINGS	Mean	Standard Deviation	t-test	Significance level (2 tailed)
BASELINE	15.50	4.024	-.412	.68
FOLLOW UP	15.70	3.476		

FIGURE 27- Comparison of baseline and follow up scores on difficulty identifying feelings (alexithymia sub-scale) in participants of control group

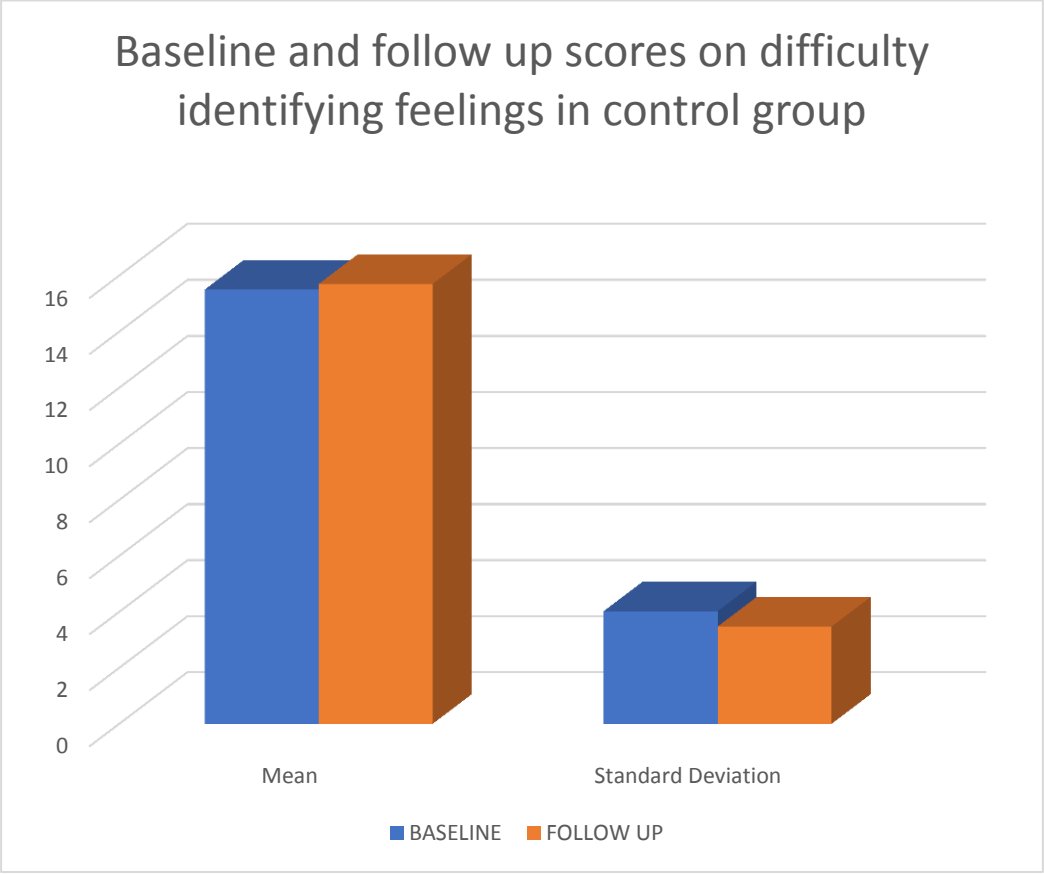


TABLE 28- Comparison of baseline and follow up scores of external orientation (alexithymia sub-scale) in participants of control group

EXTERNAL ORIENTATION	Mean	Standard Deviation	t-test	Significance level (2 tailed)
BASELINE	24.27	4.842	.919	.36
FOLLOW UP	23.30	5.127		

FIGURE 28- Comparison of baseline and follow up scores of external orientation (alexithymia sub-scale) in participants of control group

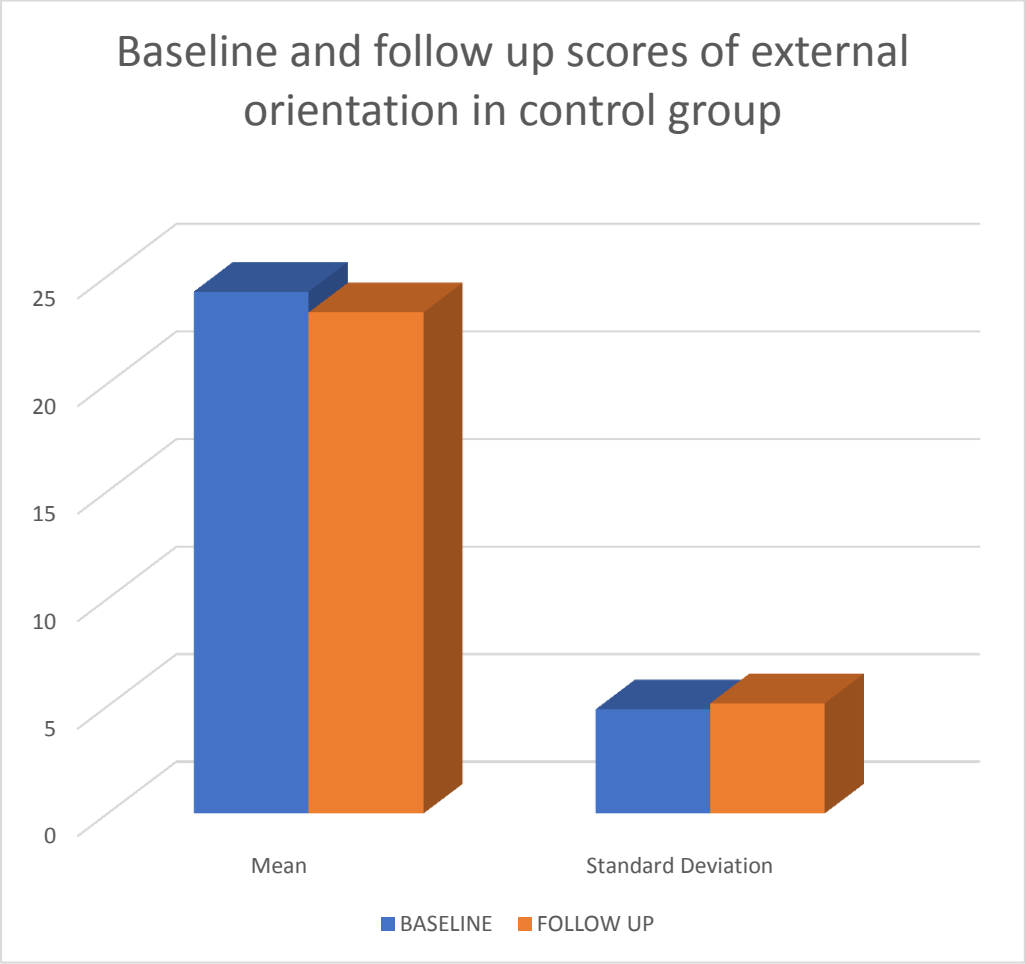


TABLE 29- Comparison of baseline and follow up scores of alexithymia (total) in participants of control group

ALEXITHYMIA (TOTAL)	Mean	Standard Deviation	t-test	Significance level (2 tailed)
BASELINE	59.60	14.275	.388	.70
FOLLOW UP	59.00	11.712		

FIGURE 29- Comparison of baseline and follow up scores of alexithymia (total) in participants of control group

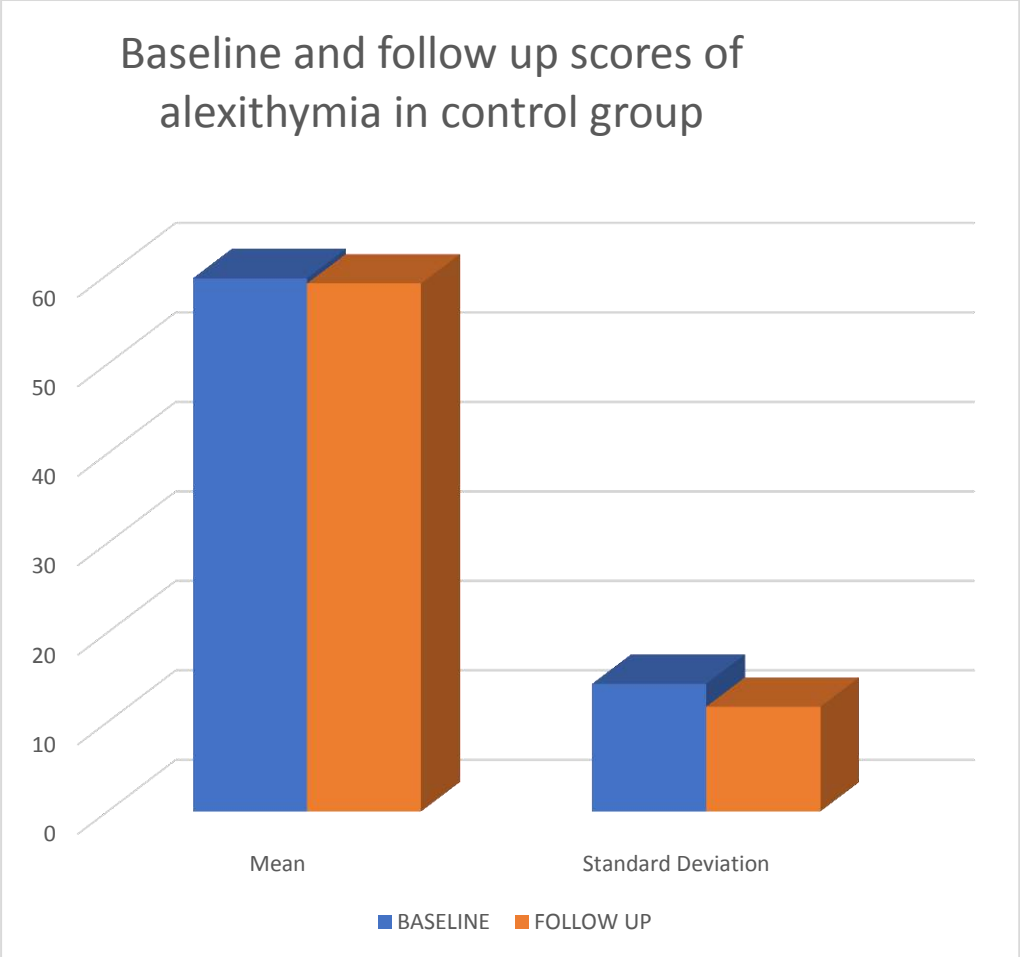


TABLE 30- Comparison of baseline and follow up scores of problem focused coping in participants of control group

PROBLEM FOCUSED COPING	Mean	Standard Deviation	z-test	Significance level (2 tailed)
BASELINE	21.17	4.052	-1.24	.21
FOLLOW UP	20.20	4.619		

FIGURE 30- Comparison of baseline and follow up scores of problem focused coping in participants of control group

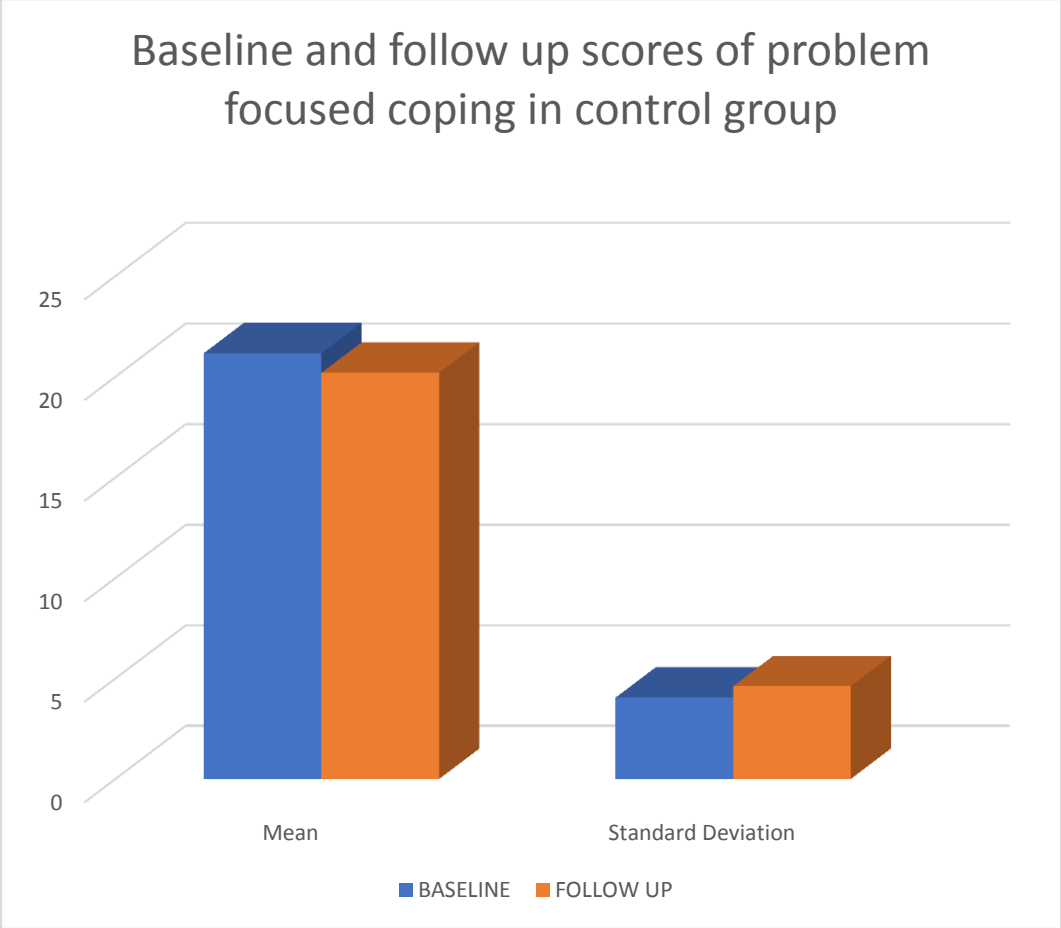


TABLE 31- Comparison of baseline and follow up scores on emotion focused coping in participants of control group

EMOTION FOCUSED COPING	Mean	Standard Deviation	t-test	Significance level (2 tailed)
BASELINE	27.80	5.863	-.720	.47
FOLLOW UP	28.80	6.682		

FIGURE 31- Comparison of baseline and follow up scores on emotion focused coping in participants of control group

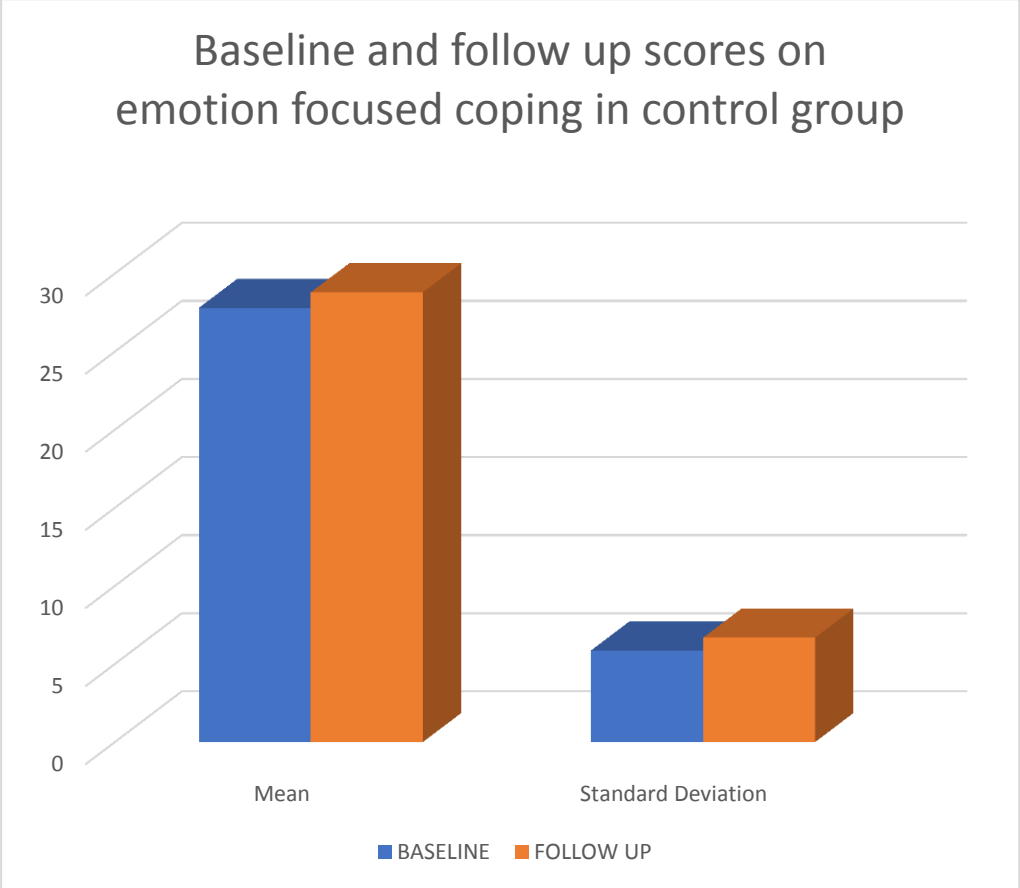


TABLE 32- Comparison of baseline and follow up scores on avoidance coping in participants of control group

AVOIDANCE COPING	Mean	Standard Deviation	t-test	Significance level (2 tailed)
BASELINE	20.67	3.854	-.458	.65
FOLLOW UP	21.13	5.871		

FIGURE 32- Comparison of baseline and follow up scores on avoidance coping in participants of control group

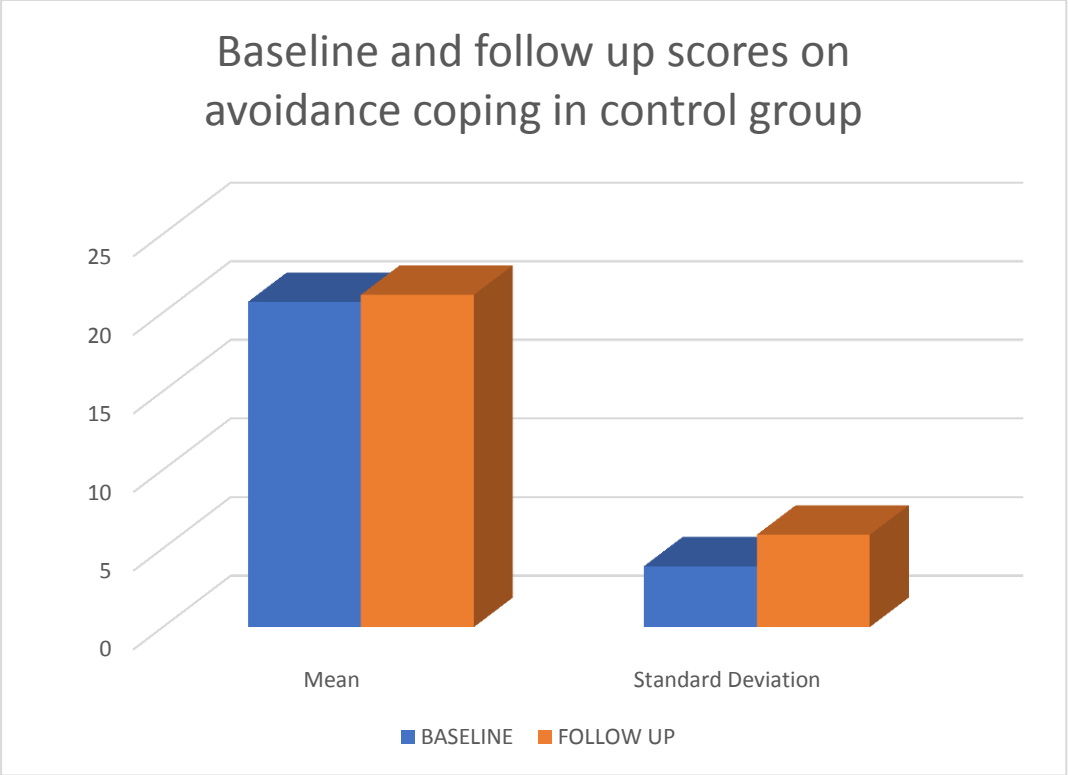


TABLE- 33 Comparison of pre-craving in participants in experimental and control groups

CRAVING	Mean ranks	Sum of ranks	U- test	W-test	Z-test	Significance level (2 tailed)
EXPERIMENTAL	34.38	1031.50	333.5	798.5	-1.72	.08
CONTROL	26.62	798.50				

FIGURE- 33 Comparison of pre-craving in participants in experimental and control group

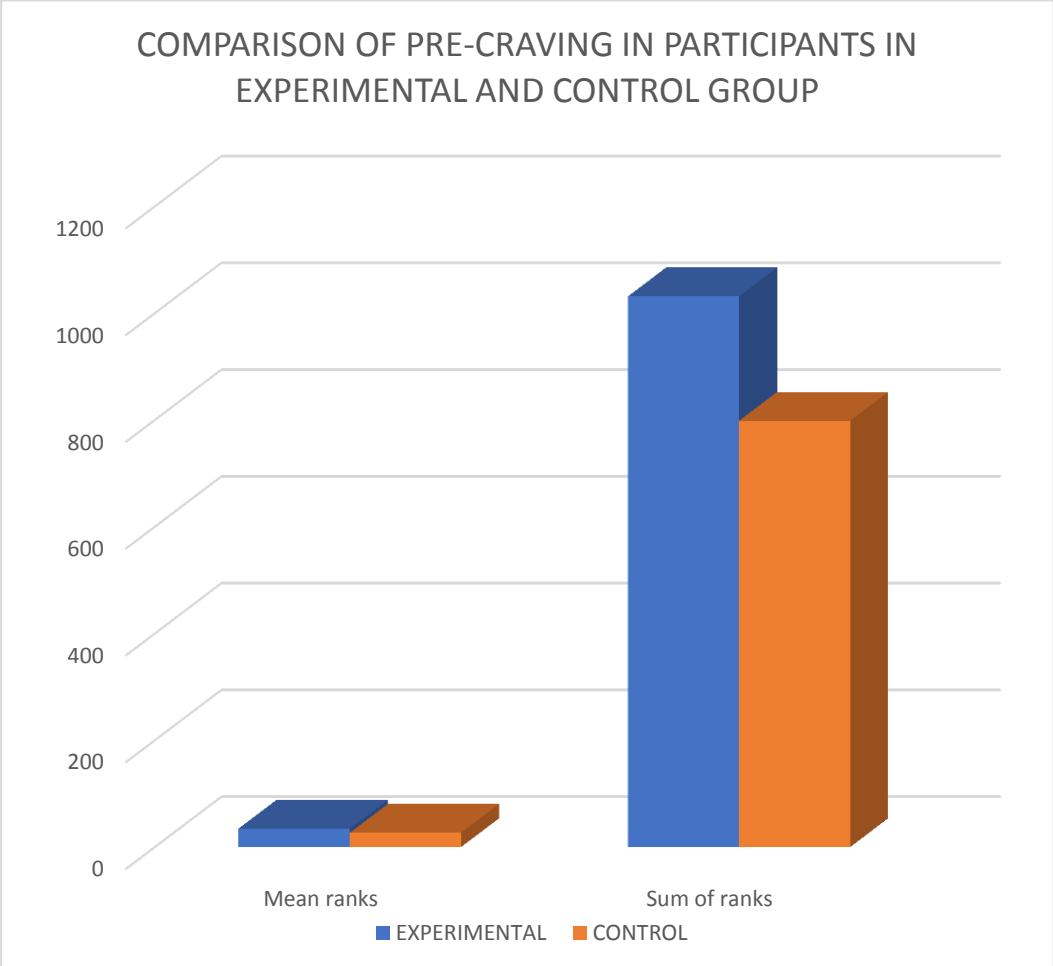


TABLE 34- Comparison of Pre-Difficulty Describing Feelings (Alexithymia sub-scale) in pre-intervention and baseline assessment in participants of experimental and control group

DIFFICULTY DESCRIBING FEELINGS	Mean rank	Sum of ranks	U-test	W-test	Z-test	Significance level (2 tailed)
EXPERIMENTAL	34.38	4.196	424.5	889.5	-.379	.70
CONTROL	26.62	4.842				

FIGURE 34- Comparison of Pre-Difficulty Describing Feelings (Alexithymia sub-scale) in participants of experimental and control group

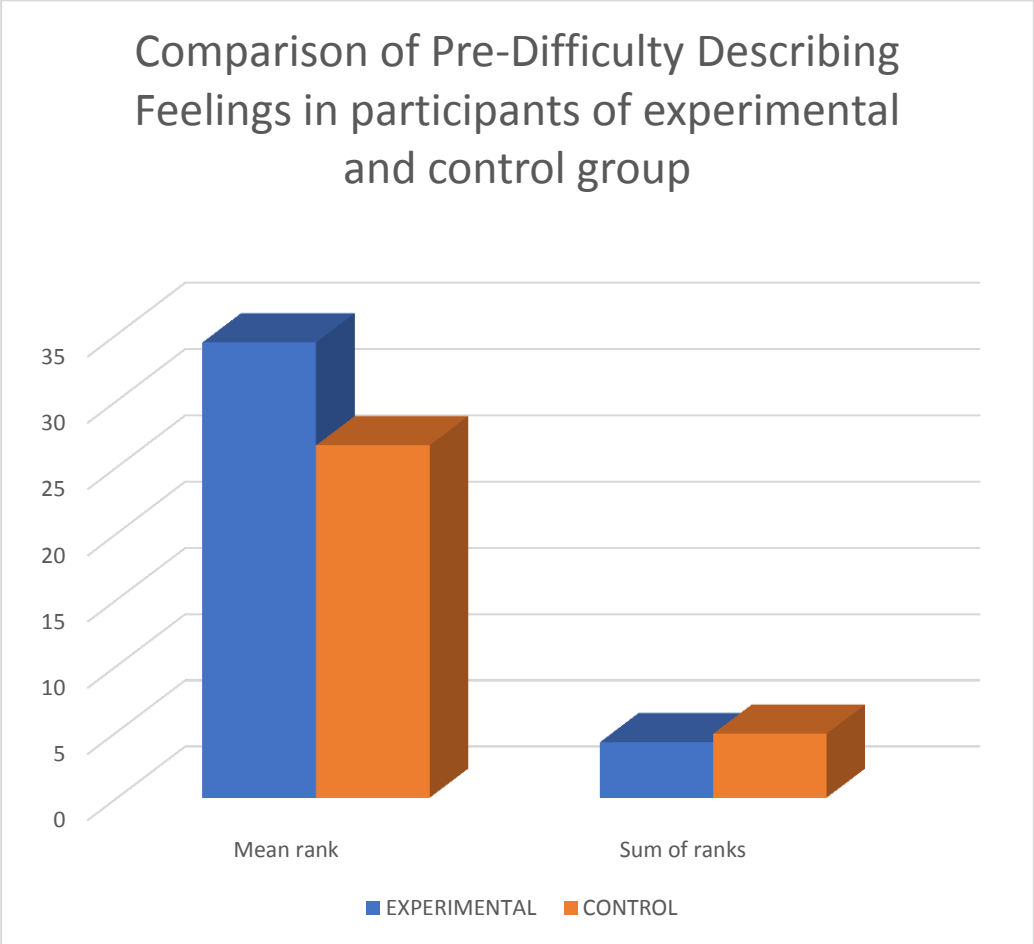


TABLE 35- Comparison of pre-difficulty identifying feelings (alexithymia sub-scale) in participants of experimental and control group

DIFFICULTY IDENTIFYING FEELINGS	Mean rank	Sum of ranks	U-test	W- test	Z-test	Significance level (2 tailed)
EXPERIMENTAL	33.73	1012.00	353.00	818.00	-1.44	.14
CONTROL	27.27	818.00				

FIGURE 35- Comparison of pre-difficulty identifying feelings (alexithymia sub-scale) in participants of experimental and control group

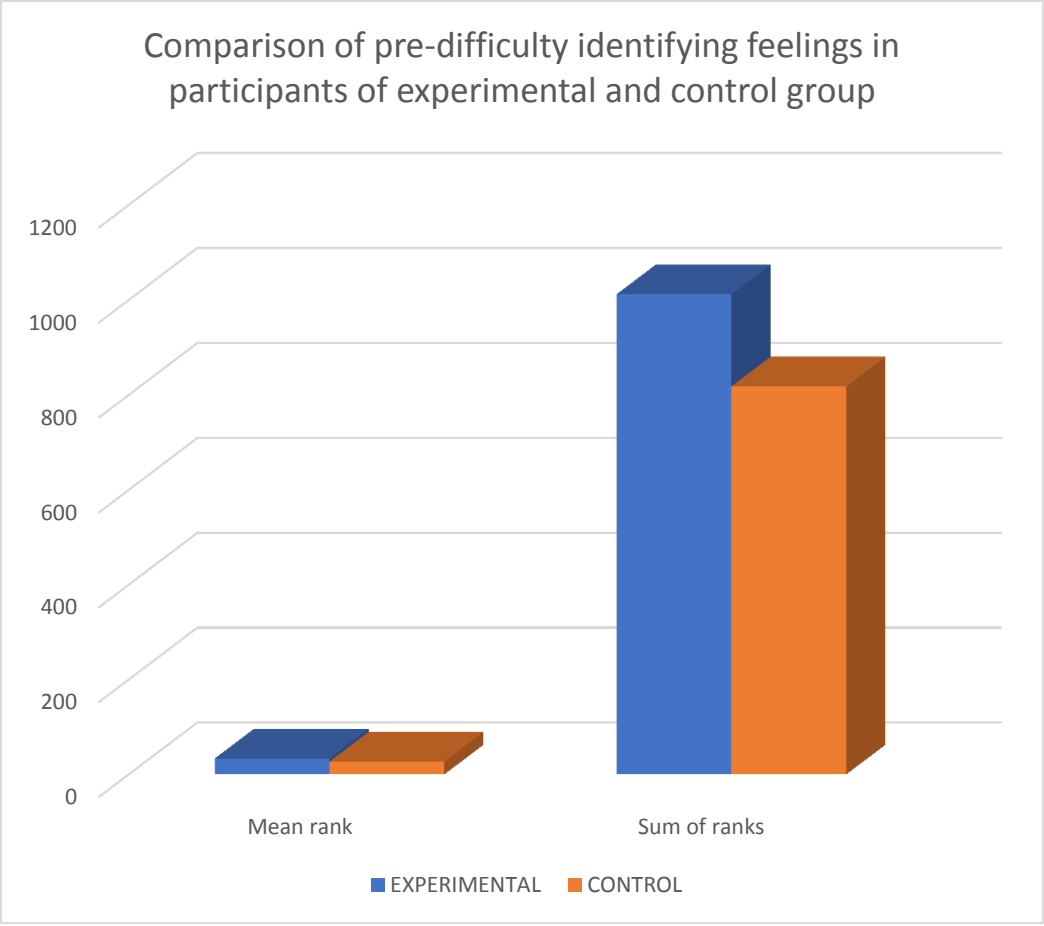


TABLE-36- Comparison in pre-external orientation (alexithymia sub-scale) in participants of experimental and control group

EXTERNAL ORIENTATION	Mean	Standard Deviation	t-test	Significance level (2 tailed)
EXPERIMENTAL	24.10	4.196	-.142	.88
CONTROL	24.27	4.842		

FIGURE-36- Comparison in pre-external orientation (alexithymia sub-scale) in participants of experimental and control group

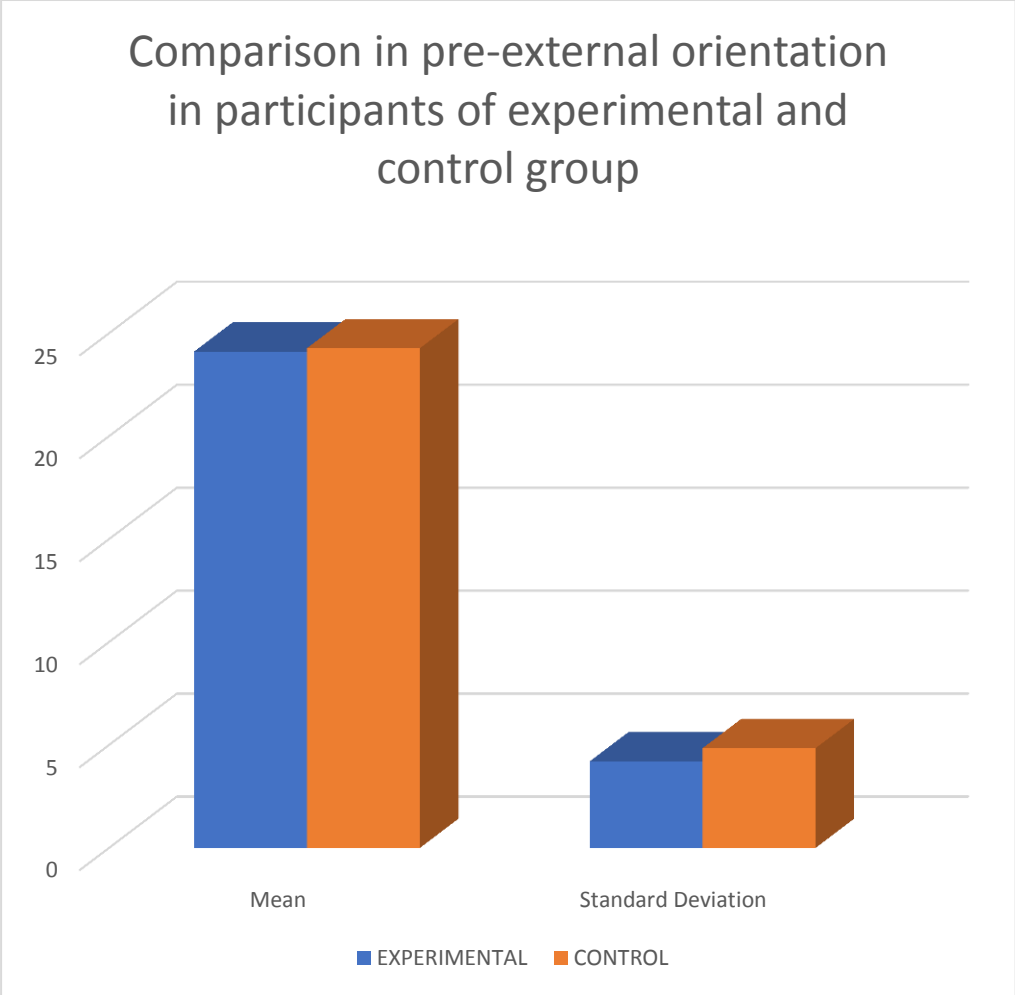


TABLE- 37 Comparison in pre-alexithymia (total) in participants of experimental and control group

ALEXITHYMIA (TOTAL)	Mean	Standard Deviation	t-test	Significance level (2 tailed)
EXPERIMENTAL	63.80	10.314	1.30	.19
CONTROL	59.60	14.275		

FIGURE- 37 Comparison in pre-alexithymia (total) in participants of experimental and control group

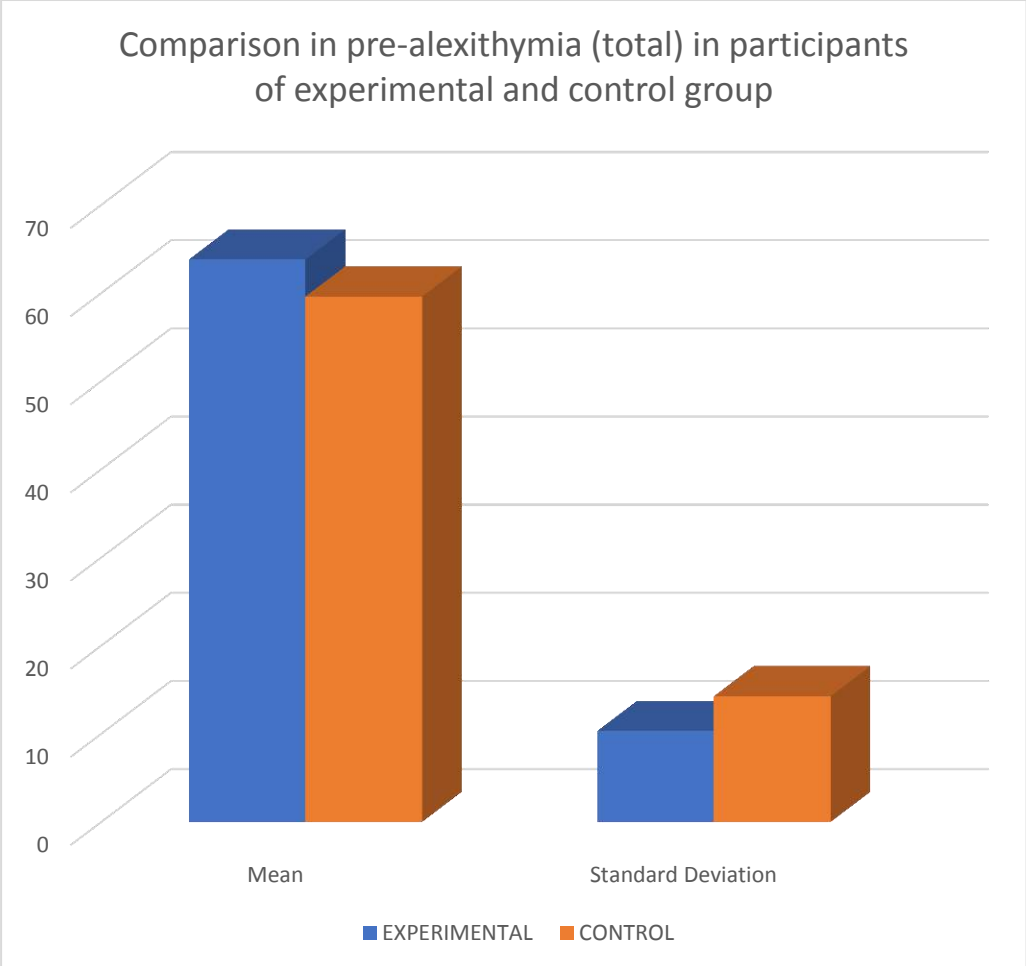


TABLE 38- Comparison of pre-problem focused coping in participants of experimental and control group

PROBLEM FOCUSED COPING	Mean	Standard Deviation	t-test	Significance level (2 tailed)
EXPERIMENTAL	20.23	5.042	-.790	.43
CONTROL	21.17	4.052		

FIGURE 38- Comparison of pre-problem focused coping in participants of experimental and control group

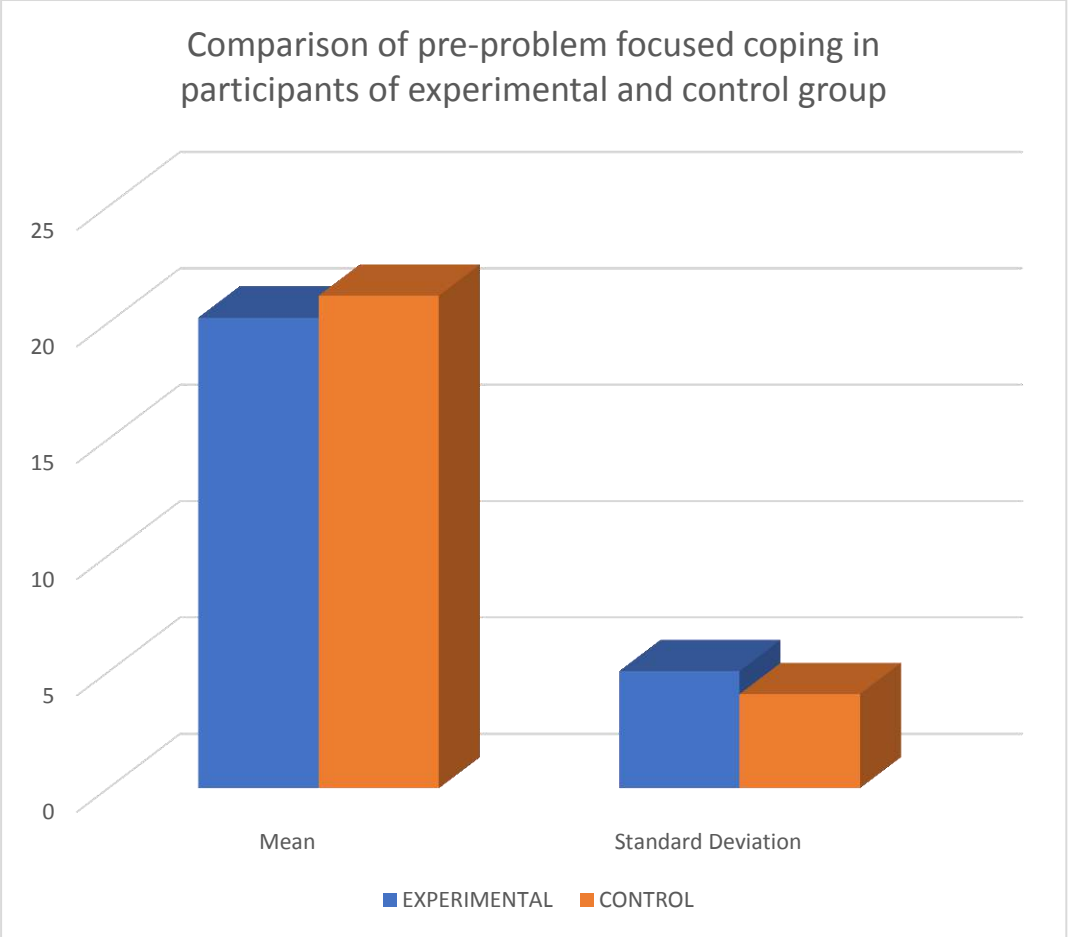


TABLE-39 Comparison of pre-emotion focused coping in participants of experimental and control group

EMOTION FOCUSED COPING	Mean	Standard Deviation	t-test	Significance level (2 tailed)
EXPERIMENTAL	29.37	7.369	.911	.36
CONTROL	27.80	5.863		

FIGURE-39 Comparison of pre-emotion focused coping in participants of experimental and control groups

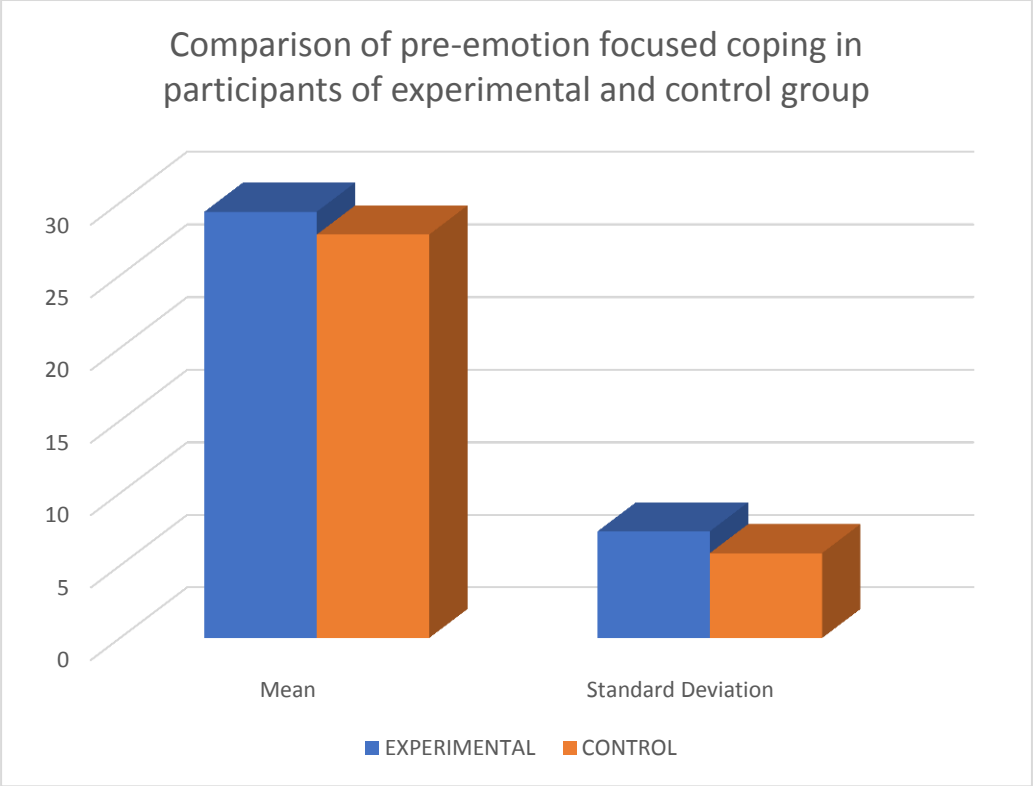


TABLE-40 Comparison of pre-avoidance coping in participants of experimental and control group

AVOIDANCE COPING	Mean	Standard Deviation	t-test	Significance level (2 tailed)
EXPERIMENTAL	21.97	4.255	1.24	.22
CONTROL	20.67	3.854		

FIGURE-40 Comparison of pre-avoidance coping in participants of experimental and control group

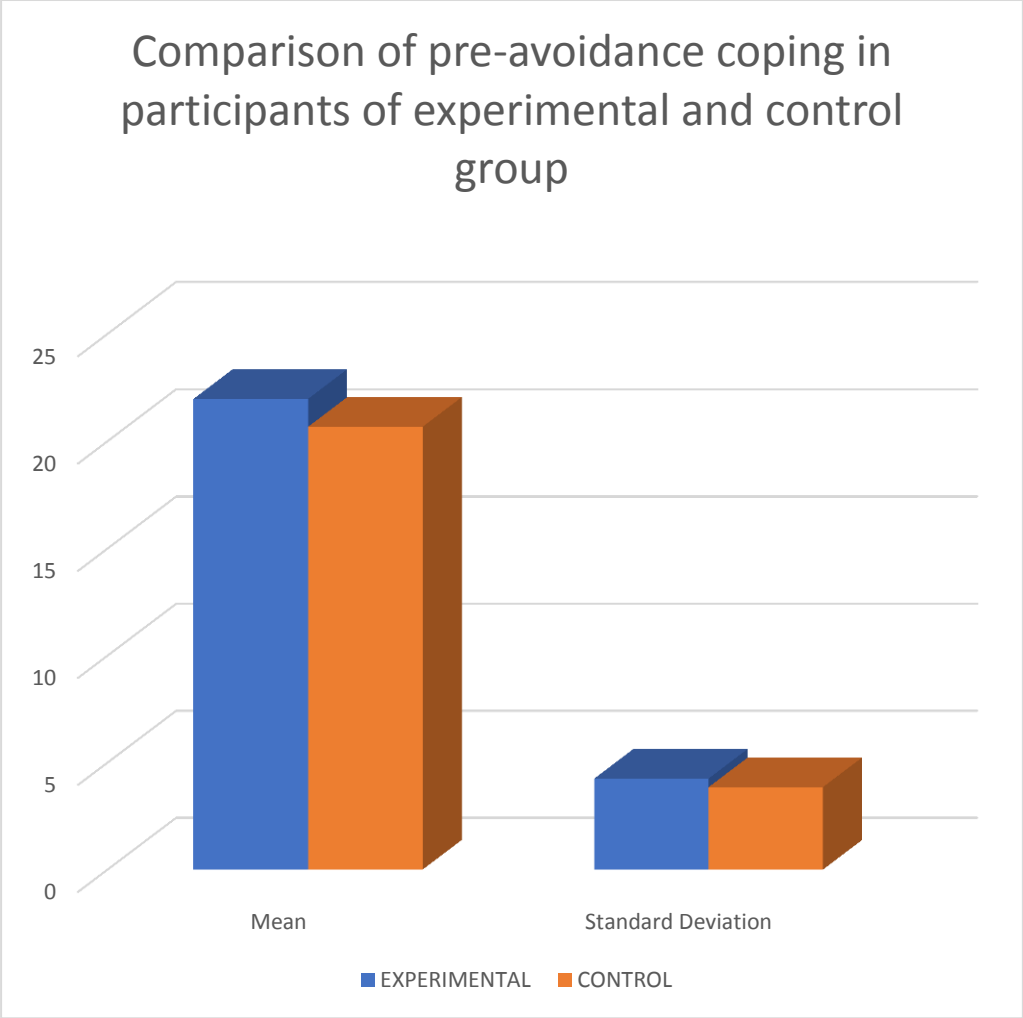


TABLE- 41 Comparison of follow up scores in craving in participants of experimental and control group

CRAVING	Mean ranks	Sum of ranks	U-test	W-test	Z-test	Significance level (2 tailed)
EXPERIMENTAL	25.18	755.50	290.5	755.50	-2.36	.01
CONTROL	35.82	1074.50				

FIGURE- 41 Comparison of follow up scores in craving in participants of experimental and control group

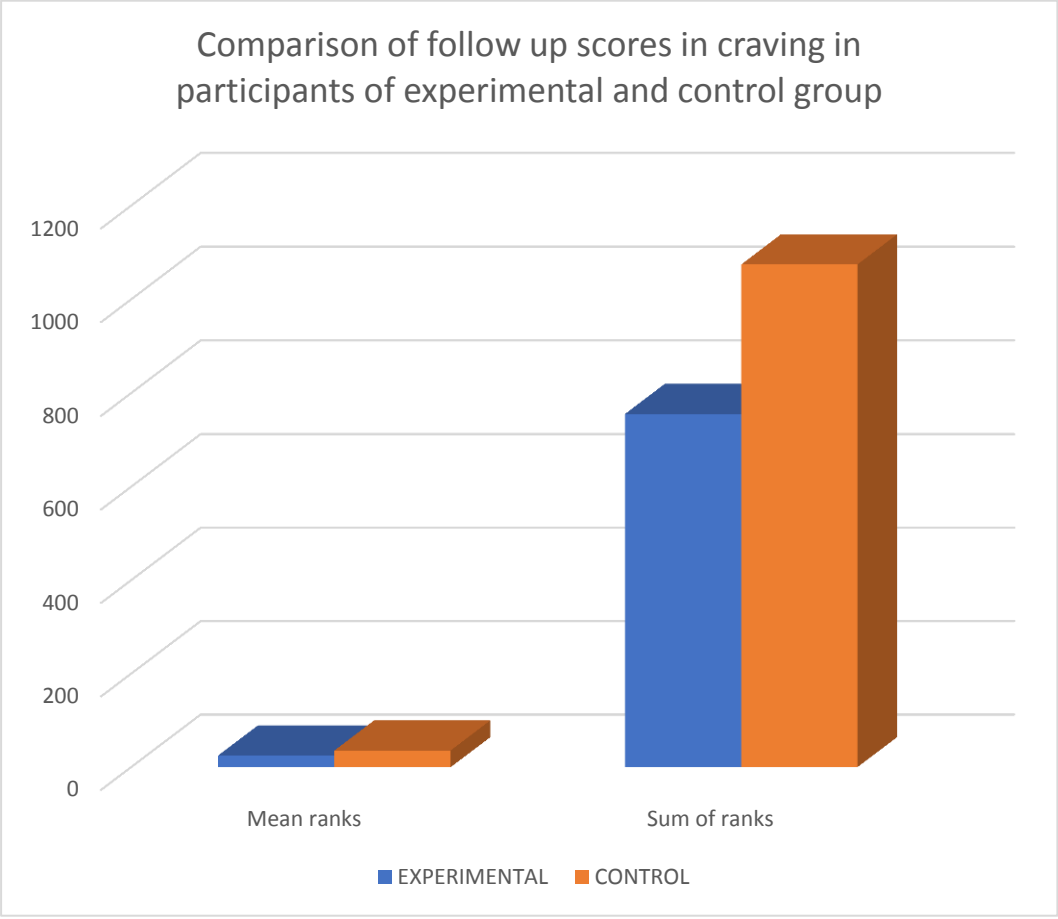


TABLE-42 Comparison of follow up scores on difficulty describing feelings (alexithymia sub-scale) in participants of experimental and control group

DIFFICULTY DESCRIBING FEELINGS	Mean	Standard Deviation	t-test	Significance level (2 tailed)
EXPERIMENTAL	16.63	4.817	-2.64	.01
CONTROL	20.00	5.038		

FIGURE-42 Comparison of follow up scores on difficulty describing feelings (alexithymia sub-scale) in participants of experimental and control group

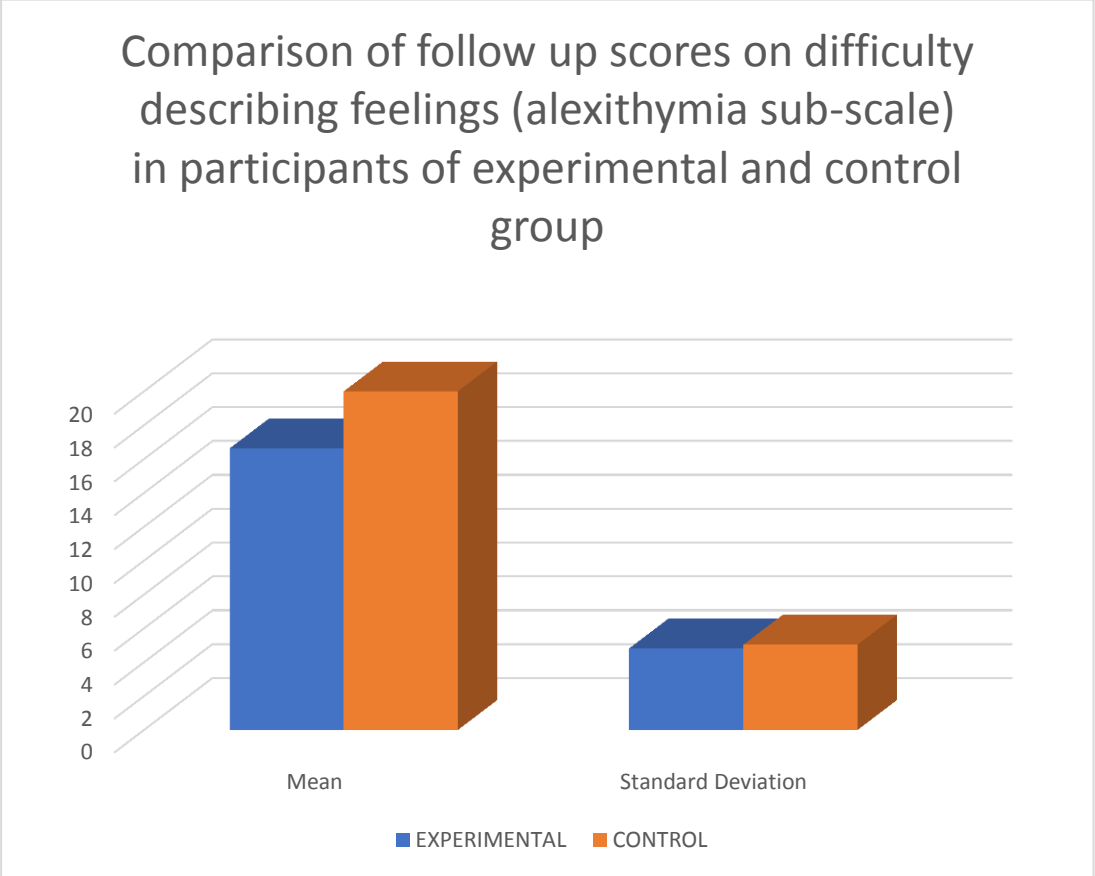


TABLE-43 Comparison of follow up scores on difficulty identifying feelings (alexithymia sub-scale) in participants of experimental and control group

DIFFICULTY INDENTIFYING FEELINGS	Mean	Standard Deviation	t-test	Significance level (2 tailed)
EXPERIMENTAL	13.83	4.052	-1.91	.06
CONTROL	15.70	3.476		

FIGURE-43 Comparison of follow up scores on difficulty identifying feelings (alexithymia sub-scale) in participants of experimental and control group

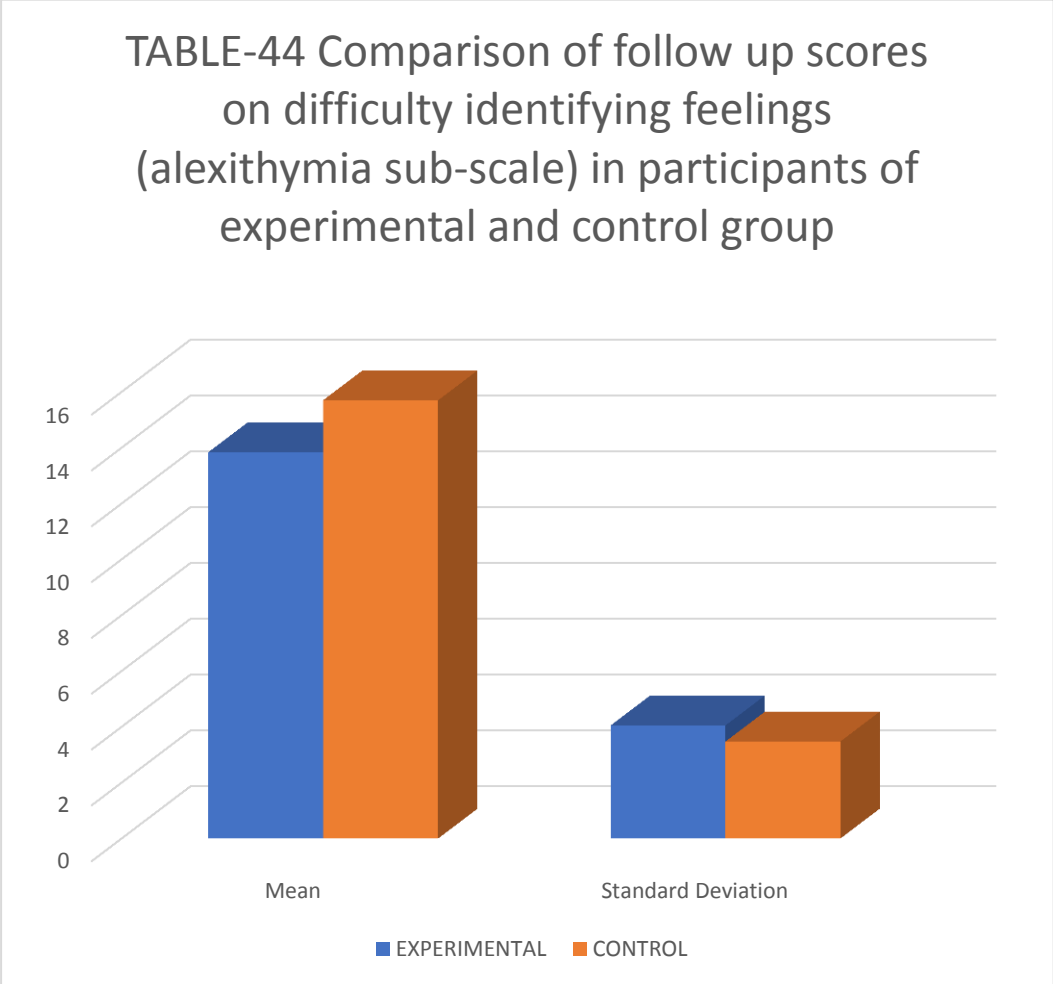


TABLE- 44 Comparison of follow up scores in external orientation (alexithymia sub-scale) in participants of experimental and control group

EXTERNAL ORIENTATION	Mean	Standard Deviation	t-test	Significance level (2 tailed)
EXPERIMENTAL	17.40	5.757	-4.19	.00
CONTROL	23.30	5.127		

FIGURE- 44 Comparison of follow up scores in external orientation (alexithymia sub-scale) in participants of experimental and control group

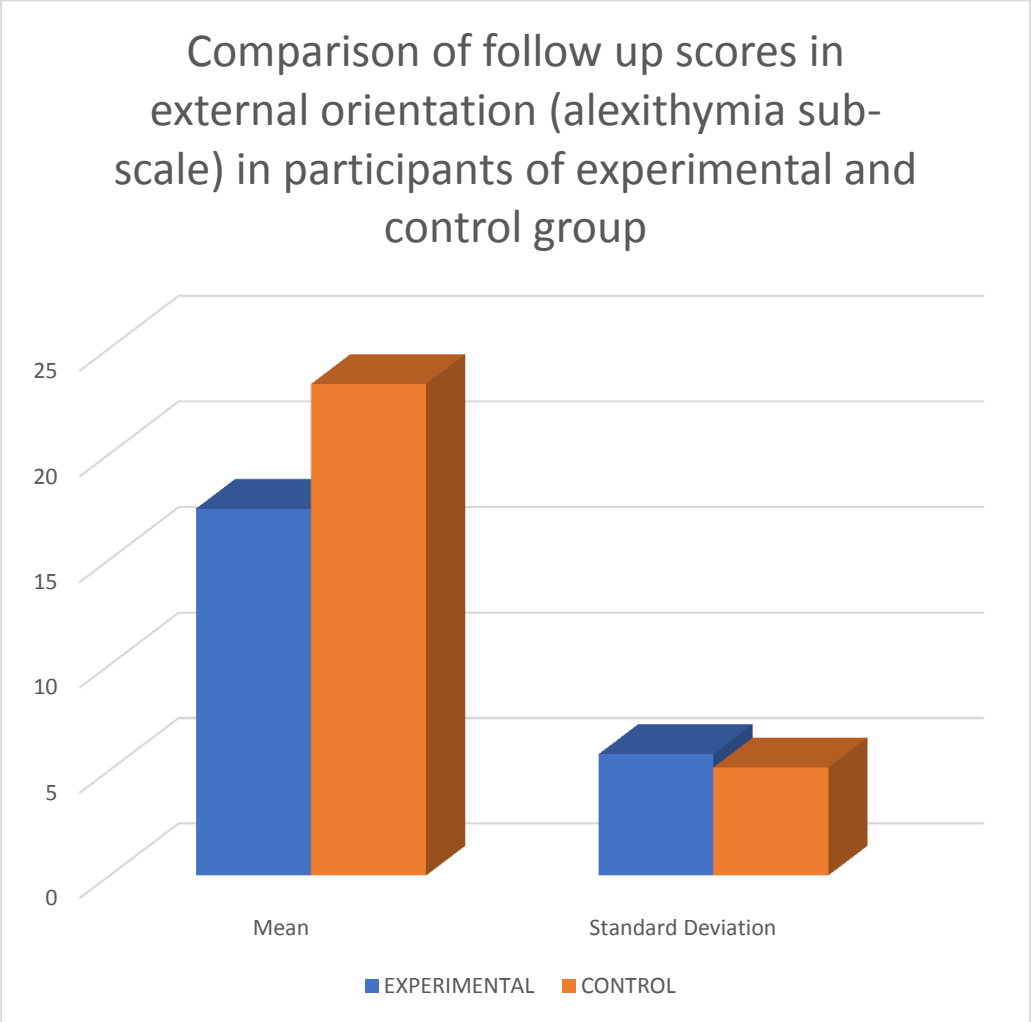


TABLE- 45 Comparison of follow up scores on alexithymia (total) in participants in experimental and control group

ALEXITHYMIA (TOTAL)	Mean	Standard Deviation	t-test	Significance level (2 tailed)
EXPERIMENTAL	47.87	13.119	-3.46	.00
CONTROL	59.00	11.712		

FIGURE- 45 Comparison of follow up scores on alexithymia (total) in participants in experimental and control group

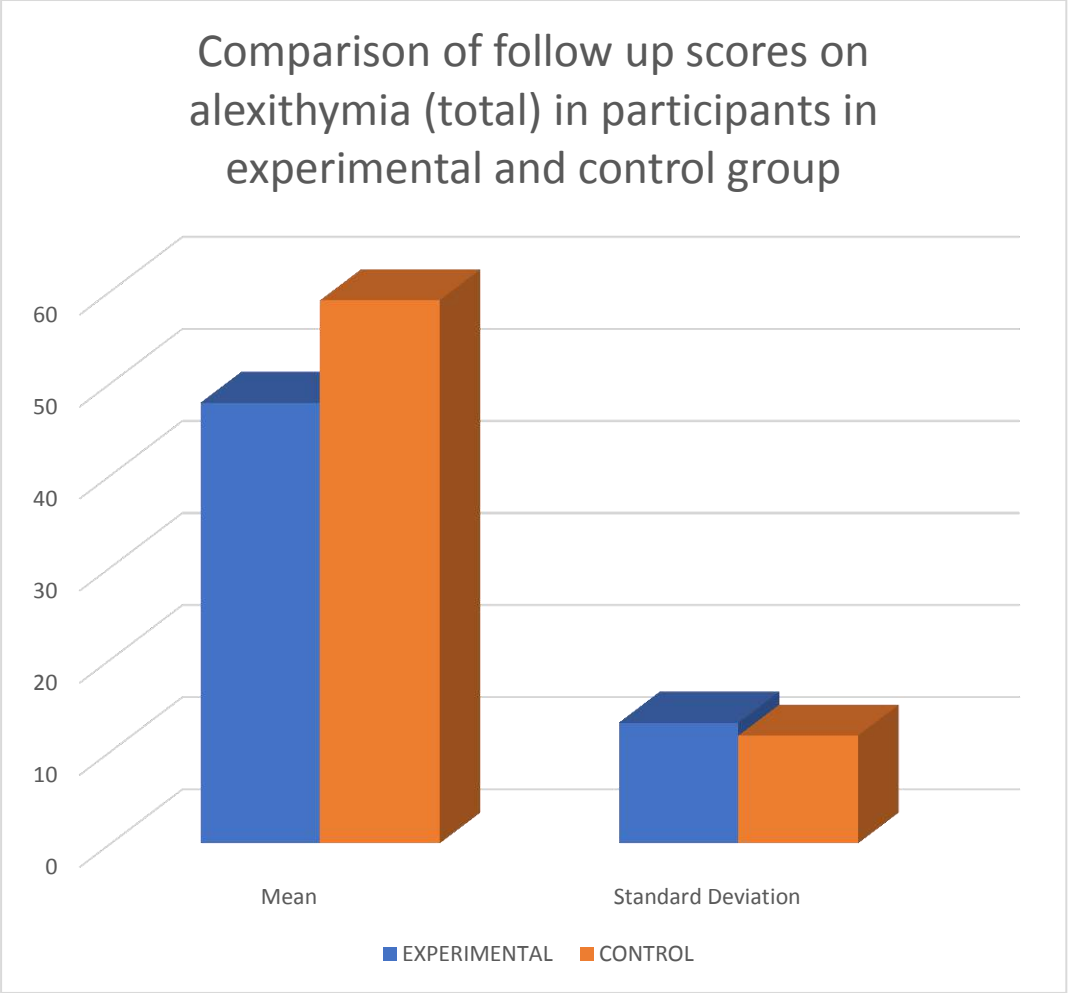


TABLE- 46 Comparison of follow up scopes in problem focused coping in participants in experimental and control group

DIFFICULTY DESCRIBING FEELINGS	Mean ranks	Sum of ranks	U- test	W-test	Z-test	Significance level (2 tailed)
EXPERIMENTAL	36.83	1105.00	260.00	725.00	-2.82	.005
CONTROL	24.17	725.00				

FIGURE- 46 Comparison of follow up scopes in problem focused coping in participants in experimental and control group

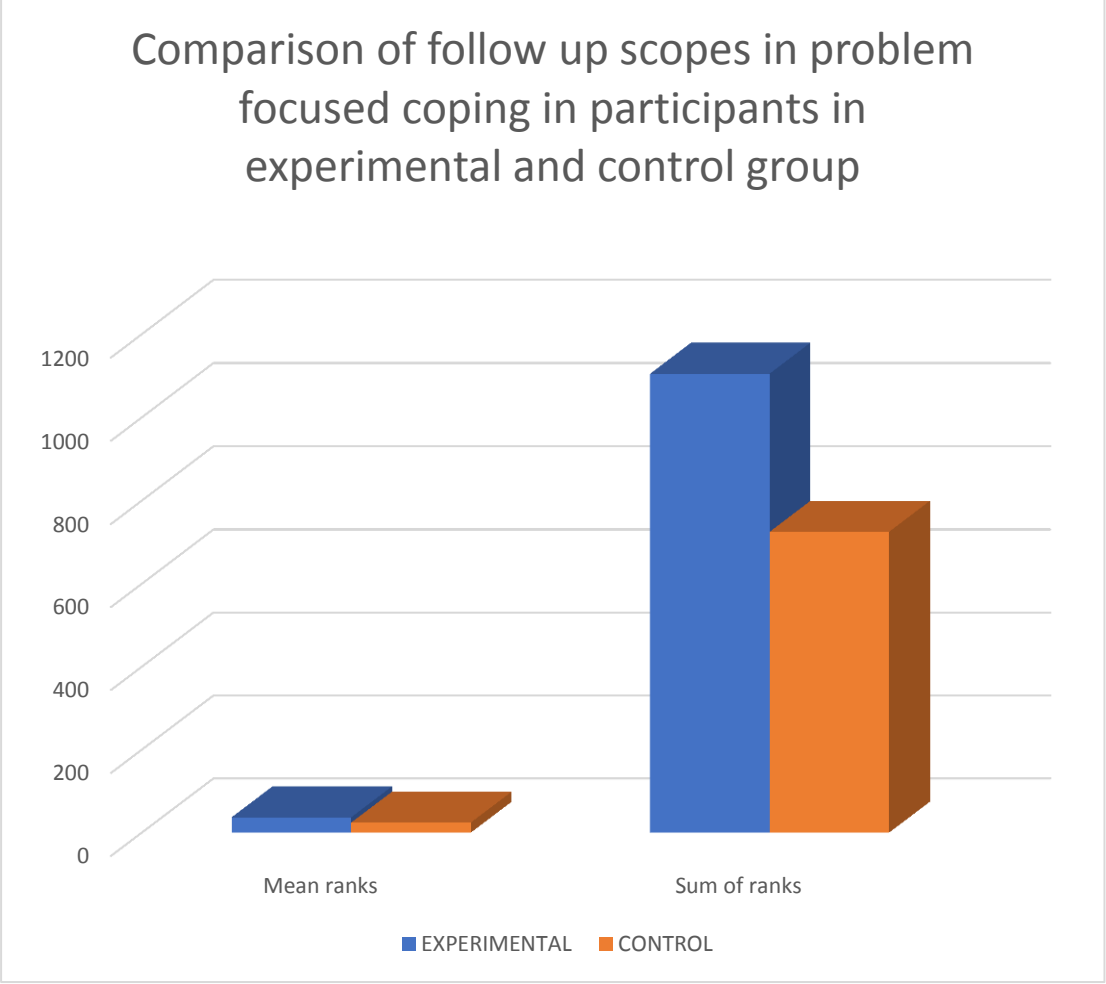


TABLE- 47 Comparison of follow up scores on emotion focused coping in participants in experimental and control group

EMOTION FOCUSED COPING	Mean	Standard Deviation	t-test	Significance level (2 tailed)
EXPERIMENTAL	28.23	5.835	-.350	.72
CONTROL	28.80	6.682		

FIGURE- 47 Comparison of follow up scores on emotion focused coping in participants in experimental and control group

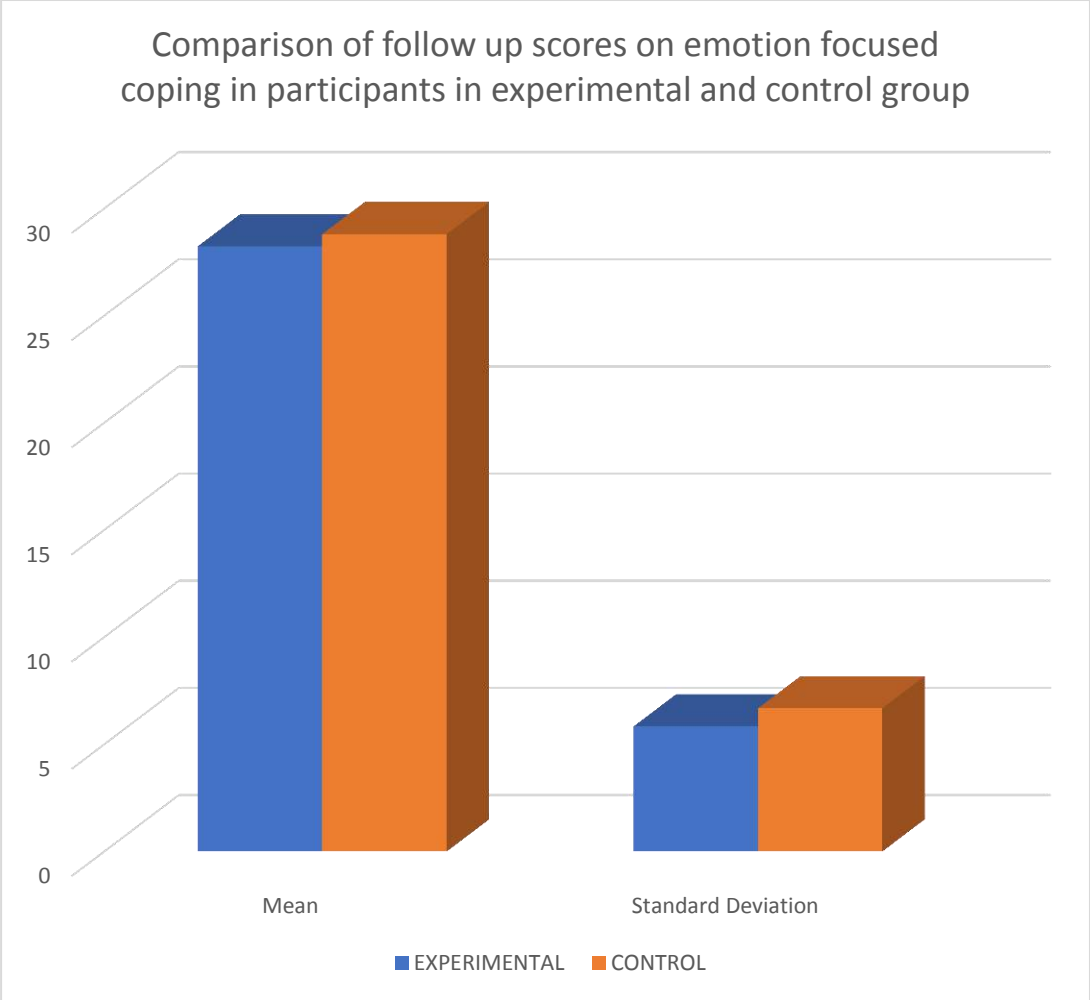
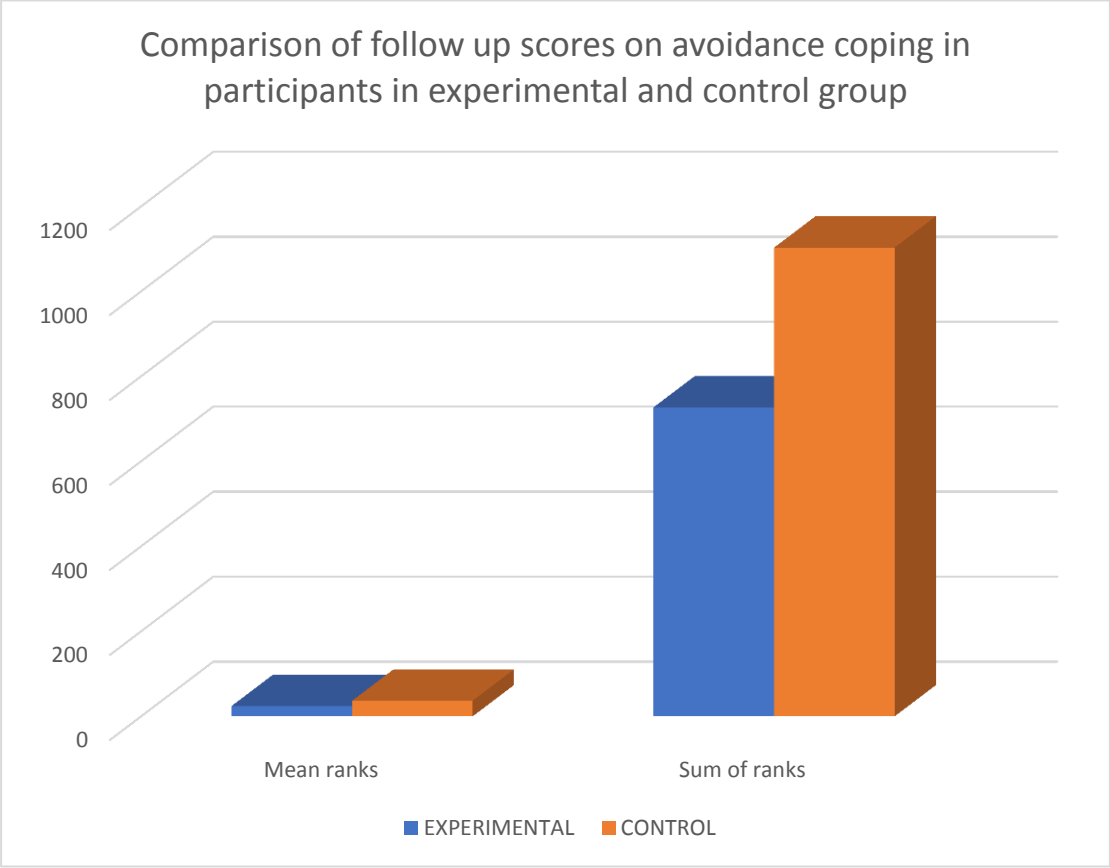


TABLE 48- Comparison of follow up scores on avoidance coping in participants in experimental and control group

AVOIDANCE COPING	Mean ranks	Sum of ranks	U- test	W-test	Z-test	Significance level (2 tailed)
EXPERIMENTAL	24.23	727.00	262.00	722.00	-2.79	.005
CONTROL	36.77	1103.00				

FIGURE 48- Comparison of follow up scores on avoidance coping in participants in experimental and control group



RESULTS

The present study was conducted to study the effect of Mindfulness based Relapse Prevention (MBPR) therapy on Craving, Alexithymia and Coping styles in patients with Opioid use disorder. The study was conducted in the Department of Psychiatry, Dayanand Medical College and Hospital, Ludhiana on 60 participants, each diagnosed with OUD as per the ICD-11. The participants were initially assessed on Craving on 3-item Craving scale, Alexithymia on Toronto Alexithymia Scale and Coping styles on Brief COPE. The participants were then divided into two groups- experimental (MBPR) and control (TAU) group. Eight individual sessions of Mindfulness based relapse prevention were carried out with the participants in Experimental group, ranging approximately two hours. Post the intervention, they were re-assessed for craving, alexithymia and coping styles on the above mentioned measures. Both the groups (experimental and control) were re-assessed on the above mentioned variables after a period of 4 months from the baseline assessment (follow up) on the same measures. Thus, the collected data was tabulated and then analysed using SPSS. The outcomes obtained are as follows:

Table 1 shows the Mean age and Percentage in the experimental and control group. The age range chosen for this study was 20 to 60 years. Mean age for experimental group was 34, with a SD of 9.67. Mean age for participants in control group was 38.1, with a standard deviation of 11.17. In experimental group, 33.3% participants belonged to 20-29 years of age group (N = 10), 43.3% participants belonged to age group of 30 to 39 years, 16.7% in 40-49 years of age (N = 5), and 6.7% in 50 to 60 years of age (N = 2). For control group, 26.7% participants belonged to 20 to 29 years of age (N = 8), 40% participants belonged to age group of 30 to 39 years (N= 12), 10% in 40-49 years of age (N = 3), and 23.3% in the 50 to 60 years of age (N= 7). For both experimental and control group, major share were observed to be in the age group of 30 to 39 years (43.3% in experimental and 40% in

control group). The mean age of the groups were compared using t-test and the value obtained was not significant, (p= 0.13) indicating homogeneity of the groups.

Table 2 shows the distribution of participants based on educational qualification in experimental and control group. In the experimental group, 10% participants (N=3) were educated up to 8th grade, 16.7% of the participants (N= 5) were educated up to 10th grade, 40% of the participants (N= 12) were educated up to 12th grade, 23.3% participants (N= 7) were graduates and 6.7% of the participants (N=2) were post-graduates. In the control group, 13.3% participants (N= 4) were educated up to 8th grade, 33.3% of the participants (N= 10) were educated up to 10th grade, 30% of the participants (N= 9) were educated up to 12th grade, 13.3% participants (N= 4) were graduates and 13.3% of the participants (N=4) were post-graduates. The two groups were compared on educational qualification using t-test. Based on educational qualification, there was no statistically significant difference between the two groups, as indicated by the calculated value of p = 0.82.

Table 3 shows the distribution of occupation in the participants of experimental and control group. In the experimental group, 46.7% of participants (N=14) were farmers/clerical/shop owners, 3.3% (N=1) were semi-skilled/skilled workers, 6.7% (N=2) were unemployed, 3.3% (N=1) were classified as "Other," 30% (N=9) were professionals, and 10% (N=3) were students. In the control group, 46.7% of participants (N=14) were farmers/clerical/shop owners, 6.7% (N=2) were semi-skilled/skilled workers, 20% (N=6) were unemployed, 0% were classified as other, 20% (N=6) were professionals, and 6.7% (N=2) were students. The two groups were compared based on occupation using a t-test. There was no statistically significant difference in occupation between the two groups, according to the calculated value of p = 0.23.

Table 4 shows the distribution of the background in the experimental and control group. In the experimental group, 53.3% of participants (N=16) resided in urban areas, while 46.7% (N=14) resided in rural areas. In the control group, 46.7% of participants (N=14) resided in urban areas, and 53.3% (N=16) resided in rural areas. The chi-square test was conducted to assess the distribution based on their addresses between the two groups. The obtained chi-square value was 0.27, with a corresponding p-value of 0.60, indicating that the difference in distribution between the two groups based on address was not statistically significant ($p > 0.05$).

Table 5 shows the distribution of family type in the participants of the experimental and control group. In the experimental group, 33.3% of participants (N=10) belonged to nuclear families, while 66.6% (N=20) belonged to joint families. In the control group, 43.3% of participants (N=13) belonged to nuclear families, and 56.7% (N=17) belonged to joint families. The chi-square test was conducted to evaluate the distribution of family types between the two groups. The obtained chi-square value was 0.63, with a corresponding p-value of 0.42. Since the p-value is greater than 0.05, the difference in the distribution of family types between the two groups is not statistically significant ($p > 0.05$).

Table 6 shows the distribution of the SES of the participants in the experimental and control group. In the experimental group, 96.7% of participants (N=29) belonged to the upper socio-economic status and 3.3% participants (N=1) belonged to lower socio-economic status. In the control group, 90% of participants (N=27) belonged to the upper socio-economic status and 10% participants (N=3) belonged to lower socio-economic status. The distribution of SES between the two groups was evaluated using chi-square test. The obtained chi-square value was 1.07, with a corresponding p-value of 0.30. Since the p-value is greater than 0.05, the difference in the distribution of socio-economic status between experimental and control group is not statistically significant ($p > 0.05$).

Table 7 reveals the distribution of type of substance used in the participants in the experimental and control group. In the experimental group, 63.3% of participants (N=19) used raw opium, 33.3% (N=10) used heroin, and 3.3% (N=1) used medicines. In the control group, 66.7% of participants (N=20) used raw opium, 30% (N=9) used heroin, and 3.3% (N=1) used medicines. The t-test was conducted to compare the distribution of the type of substance used between the experimental and control groups. The obtained t-test value was 0.23, with a corresponding p-value of 0.40. Since the p-value is greater than 0.05, the difference in the distribution of the type of substance used between the two groups is not statistically significant ($p > 0.05$).

Table 8 shows the distribution of total duration of substance use in participants of experimental and control group. In the experimental group, 16.7% of participants (N=5) reported a total duration of substance use of less than 1 year, 53.3% (N=16) reported 1-5 years, 13.3% (N=4) reported 5-10 years, 10% (N=3) reported 10-20 years, 3.3% (N=1) reported 20-30 years, and 3.3% (N=1) reported 30-40 years. In the control group, 20% of participants (N=6) reported a total duration of substance use of less than 1 year, 30% (N=9) reported 1-5 years, 26.7% (N=8) reported 5-10 years, 13.3% (N=4) reported 10-20 years, 6.7% (N=2) reported 20-30 years, and 3.3% (N=1) reported 30-40 years. The chi-square test was conducted to compare the distribution of the total duration of substance use between the experimental and control groups. The obtained chi-square value was 3.86, with a corresponding p-value of 0.56. Since the p-value is greater than 0.05, the difference in the distribution of the total duration of substance use between the two groups is not statistically significant ($p > 0.05$).

Table 9 presents the comparison of pre- and post-intervention scores on craving in the participants of the experimental group. The mean pre-intervention craving score was 6.22 with a standard deviation of 2.10, indicating that, on average, participants reported relatively high levels

of craving before the intervention. Following the intervention, the mean craving score decreased significantly to 2.90, with a standard deviation of 1.81. This substantial reduction in craving scores suggests that the intervention had a notable impact on reducing participants' craving for the substance. A z-test was conducted to assess the significance of the difference between pre- and post-intervention craving scores. The obtained z-test value was -4.43, with a significance level (two-tailed) of .00. This indicates that the difference in craving scores between pre- and post-intervention was statistically significant ($p < .05$), demonstrating the effectiveness of the mindfulness based relapse prevention in reducing craving levels among participants in the experimental group.

Table 10 provides a comparison of post-intervention and follow-up scores on craving in participants of the experimental group. The mean craving score post-intervention was 2.90, with a standard deviation of 1.81, indicating a relatively low level of craving reported by participants immediately after the intervention. At the follow-up assessment, the mean craving score increased slightly to 3.73, with a standard deviation of 2.43. A z-test was conducted to determine the significance of the difference between post-intervention and follow-up craving scores. The obtained z-test value was -2.21, with a significance level (two-tailed) of .02. This indicates that the difference in craving scores between post-intervention and follow-up assessments was statistically significant ($p < .05$).

Table 11 presents the comparison of pre- and post-intervention scores on difficulty describing feelings, which is a sub-scale of alexithymia, in participants of the experimental group. The mean difficulty describing feelings score pre-intervention was 22.57, with a standard deviation of 4.66. This suggests that, on average, participants reported relatively high levels of difficulty in describing their feelings before the intervention. Following the intervention, there was a notable decrease in the mean difficulty describing feelings score to 17.43, with a

standard deviation of 5.00. This reduction indicates that the intervention had a significant impact on improving participants' ability to describe their feelings. A t-test was conducted to assess the significance of the difference between pre- and post-intervention scores on difficulty describing feelings. The obtained t-test value was 7.064, with a significance level (two-tailed) of .00. This indicates that the difference in scores between pre- and post-intervention was statistically significant ($p < .05$), demonstrating the effectiveness of the mindfulness based relapse prevention in reducing difficulty describing feelings among participants in the experimental group.

Table 12 presents the comparison of post-intervention and follow-up scores on difficulty describing feelings, a sub-scale of alexithymia, among participants of the experimental group. The mean difficulty describing feelings score post-intervention was 17.43, with a standard deviation of 5.00. This indicates that, on average, participants reported relatively improved abilities to describe their feelings immediately after the intervention. The mean difficulty describing feelings score at the follow-up assessment was 16.63, with a standard deviation of 4.81. This suggests that, on average, participants' ability to describe their feelings remained relatively stable over time from the post-intervention period to the follow-up assessment. A t-test was conducted to assess the significance of the difference between post-intervention and follow-up scores on difficulty describing feelings. The obtained t-test value was 1.44, with a significance level (two-tailed) of .15. This indicates that the difference in scores between post-intervention and follow-up was not statistically significant ($p > .05$).

Table 13 compares pre- and post-intervention scores on difficulty identifying feelings, a sub-scale of alexithymia, among participants of the experimental group. Before the intervention, participants exhibited a mean difficulty identifying feelings score of 17.13, with a standard deviation of 3.85, indicating notable difficulties in identifying their emotions. Following the intervention, there was a reduction in the mean

score to 14.83, with a standard deviation of 4.18. This decline suggests an improvement in participants' ability to identify their feelings after the intervention. A t-test was conducted to evaluate the significance of the difference between pre- and post-intervention scores. The computed t-test value was 3.44, with a significance level (two-tailed) of .00, indicating statistical significance ($p < .05$). This demonstrates the effectiveness of the mindfulness based relapse prevention in reducing difficulty identifying feelings among participants in the experimental group.

Table 14 compares post-intervention and follow-up scores on difficulty identifying feelings, among participants in the experimental group. The mean difficulty identifying feelings score post-intervention was 14.83, with a standard deviation of 4.18, showing improvement in identifying their feelings. However, at the follow-up assessment, the mean difficulty identifying feelings score was 13.83, with a standard deviation of 4.05. A t-test was conducted to assess the significance of the difference between post-intervention and follow-up scores on difficulty identifying feelings. The computed t-test value was 2.23, with a significance level (two-tailed) of .03. This suggests that the difference in scores between post-intervention and follow-up was statistically significant ($p < .05$), indicating continued improvement in participants' ability to identify their feelings at the follow-up assessment compared to post-intervention.

Table 15 compared the pre- and post-intervention scores on external orientation, a sub-scale of alexithymia, among participants in the experimental group. Before the intervention, participants exhibited a mean external orientation score of 24.10, with a standard deviation of 4.19, indicating a high level of external focus and reliance on external stimuli to guide behavior. Following the intervention, there was a significant reduction in the mean external orientation score to 17.93, with a standard deviation of 5.62. A t-test was conducted to assess the significance of the difference between pre- and post-intervention

scores. The computed t-test value was 7.03, with a significance level (two-tailed) of .00, indicating statistical significance ($p < .05$).

Table 16 compares post-intervention and follow-up scores on external orientation among participants in the experimental group. The mean external orientation score post-intervention was 17.93, with a standard deviation of 5.62. At the follow-up assessment, the mean external orientation score was 17.40, with a standard deviation of 5.75. This indicates that, on average, participants' levels of external orientation remained relatively stable over time from the post-intervention period to the follow-up assessment. A t-test was conducted to assess the significance of the difference between post-intervention and follow-up scores on external orientation. The computed t-test value was .886, with a significance level (two-tailed) of .38. This suggests that the difference in scores between post-intervention and follow-up was not statistically significant ($p > .05$).

Table 17 presents the comparison of pre- and post-intervention scores on alexithymia among participants in the experimental group. Before the intervention, participants had a mean total alexithymia score of 63.80, with a standard deviation of 10.31, indicating a relatively high level of alexithymia traits. Following the intervention, there was a significant reduction in the mean total alexithymia score to 50.20, with a standard deviation of 13.42. This decrease suggests that the intervention improved participants' emotional awareness and expression. A t-test was conducted to assess the significance of the difference between pre- and post-intervention scores. The computed t-test value was 7.22, with a significance level (two-tailed) of .00, indicating statistical significance ($p < .05$). This demonstrates the effectiveness of the mindfulness based relapse prevention in reducing overall alexithymia among participants in the experimental group.

Table 18 compares post-intervention and follow-up scores on alexithymia among participants in the experimental group. The mean total alexithymia score post-intervention was 50.20, with a standard

deviation of 13.42. At the follow-up assessment, the mean total alexithymia score was 47.87, with a standard deviation of 13.11. This indicates that, on average, participants' total alexithymia symptoms remained relatively lower or stable over time from the post-intervention period to the follow-up assessment. A t-test was conducted to assess the significance of the difference between post-intervention and follow-up scores on total alexithymia. The computed t-test value was 1.99, with a significance level (two-tailed) of .05. This suggests that the difference in scores between post-intervention and follow-up was marginally significant ($p = .05$).

Table 19 presents the comparison of pre- and post-intervention scores on problem-focused coping among participants in the experimental group. Before the intervention, participants had a mean problem-focused coping score of 20.23, with a standard deviation of 5.04. Following the intervention, there was a notable increase in the mean problem-focused coping score to 23.00, with a standard deviation of 5.15. This increase suggests that the intervention led to an enhancement in participants' utilization of problem-focused coping strategies post-intervention. A t-test was conducted to assess the significance of the difference between pre- and post-intervention scores. The computed t-test value was -3.60, with a significance level (two-tailed) of .001. This indicates statistical significance ($p < .05$), demonstrating that the difference in scores between pre- and post-intervention was significant.

Table 20 compares post-intervention and follow-up scores on problem-focused coping among participants in the experimental group. The mean problem-focused coping score post-intervention was 23.00, with a standard deviation of 5.15. At the follow-up assessment, the mean problem-focused coping score was 23.57, with a standard deviation of 4.04. This suggests that, on average, participants' utilization of problem-focused coping strategies remained relatively stable or slightly improved over time from the post-intervention period to the follow-up

assessment. A t-test was conducted to assess the significance of the difference between post-intervention and follow-up scores on problem-focused coping. The computed t-test value was -0.754, with a significance level (two-tailed) of .45. This suggests that the difference in scores between post-intervention and follow-up was not statistically significant ($p > .05$), indicating that participants' utilization of problem-focused coping strategies did not significantly change from post-intervention to follow-up.

Table 21 presents the comparison of pre- and post-intervention scores on emotion-focused coping among participants in the experimental group. Before the intervention, participants had a mean emotion-focused coping score of 29.37, with a standard deviation of 7.36. Following the intervention, the mean emotion-focused coping score decreased slightly to 28.53, with a standard deviation of 5.90. This suggests that, on average, participants' utilization of emotion-focused coping strategies remained relatively stable or decreased slightly after the intervention. A t-test was conducted to assess the significance of the difference between pre- and post-intervention scores on emotion-focused coping. The computed t-test value was 0.797, with a significance level (two-tailed) of .43. This suggests that the difference in scores between pre- and post-intervention was not statistically significant ($p > .05$).

Table 22 compares post-intervention and follow-up scores on emotion-focused coping among participants in the experimental group. The mean emotion-focused coping score post-intervention was 28.53, with a standard deviation of 5.90. At the follow-up assessment, the mean emotion-focused coping score was 28.23, with a standard deviation of 5.83. This indicates that, on average, participants continued to utilize emotion-focused coping strategies at a similar level from the post-intervention period to the follow-up assessment. A t-test was conducted to assess the significance of the difference between post-intervention and follow-up scores on emotion-focused coping. The computed t-test

value was 0.303, with a significance level (two-tailed) of .76. This indicates that the difference in scores between post-intervention and follow-up was not statistically significant ($p > .05$).

Table 23 presents the comparison of pre- and post-intervention scores on avoidance coping among participants in the experimental group. Before the intervention, participants had a mean avoidance coping score of 21.97, with a standard deviation of 4.255. This indicates their tendency to engage in avoidance coping strategies, such as denial, distraction and substance use, to manage stressors or challenges. Following the intervention, the mean avoidance coping score decreased to 17.13, with a standard deviation of 5.806. This suggests that, on average, participants' utilization of avoidance coping strategies decreased after the intervention, indicating potentially healthier coping responses. Wilcoxon signed rank test was conducted to assess the significance of the difference between pre- and post-intervention scores on avoidance coping. The obtained z-test value was -3.94, with a significance level (two-tailed) of .00. This indicates statistical significance ($p < .05$), demonstrating that the difference in scores between pre- and post-intervention was significant.

Table 24 compares post-intervention and follow-up scores on avoidance coping among participants in the experimental group. The mean avoidance coping score post-intervention was 17.13, with a standard deviation of 5.806. At the follow-up assessment, the mean avoidance coping score was 17.20, with a standard deviation of 5.774. This indicates that, on average, participants' utilization of avoidance coping strategies remained relatively stable over time from the post-intervention period to the follow-up assessment. Wilcoxon signed rank test was conducted to assess the significance of the difference between post-intervention and follow-up scores on avoidance coping. The obtained z-test value was -0.023, with a significance level (two-tailed) of .90. This suggests that the difference in scores between post-intervention and follow-up was not statistically significant ($p > .05$),

indicating that participants' utilization of avoidance coping strategies did not significantly change from post-intervention to follow-up.

Table 25 compares baseline and follow-up scores on craving among participants in the control group. The mean craving score at baseline was 5.43, with a standard deviation of 2.06. At the follow-up assessment, the mean craving score was 5.34, with a standard deviation of 2.64. A z-test was conducted to assess the significance of the difference between baseline and follow-up scores on craving. The obtained z-test value was -0.137, with a significance level (two-tailed) of .89. This indicates that the difference in scores between baseline and follow-up was not statistically significant ($p > .05$), suggesting that there was no significant change in craving levels from baseline to follow-up in the control group.

Table 26 compares baseline and follow-up scores on difficulty describing feelings (an alexithymia sub-scale) among participants in the control group. The mean difficulty describing feelings score at baseline was 21.90, with a standard deviation of 4.64. At the follow-up assessment, the mean difficulty describing feelings score was 20.00, with a standard deviation of 5.03. This indicates that there was a slight reduction in the scores of the participants at pre treatment and follow up period. A t-test was conducted to assess the significance of the difference between baseline and follow-up scores on difficulty describing feelings. The obtained t-test value was 3.22, with a significance level (two-tailed) of .05. This indicates that the difference in scores between baseline and follow-up was marginally significant ($p = .05$), suggesting a potential trend towards improvement in difficulty describing feelings from baseline to follow-up in the control group.

Table 27 presents the comparison of baseline and follow-up scores on difficulty identifying feelings (an alexithymia sub-scale) among participants in the control group. The mean difficulty identifying feelings score at baseline was 15.50, with a standard deviation of 4.024. At the follow-up assessment, the mean difficulty identifying feelings score was

15.70, with a standard deviation of 3.476. A t-test was conducted to assess the significance of the difference between baseline and follow-up scores on difficulty identifying feelings. The obtained t-test value was -0.412, with a significance level (two-tailed) of .68. This indicates that the difference in scores between baseline and follow-up was not statistically significant ($p > .05$), suggesting that there was no significant change in difficulty identifying feelings from baseline to follow-up in the control group.

Table 28 compares baseline and follow-up scores of external orientation (an alexithymia sub-scale) among participants in the control group. The mean external orientation score at baseline was 24.27, with a standard deviation of 4.842. At the follow-up assessment, the mean external orientation score was 23.30, with a standard deviation of 5.127. A t-test was conducted to assess the significance of the difference between baseline and follow-up scores on external orientation. The obtained t-test value was 0.919, with a significance level (two-tailed) of .36. This indicates that the difference in scores between baseline and follow-up was not statistically significant ($p > .05$), suggesting that there was no significant change in external orientation from baseline to follow-up in the control group.

Table 29 compares baseline and follow-up scores of total alexithymia among participants in the control group. At baseline, the mean total alexithymia score was 59.60, with a standard deviation of 14.275. At the follow-up assessment, the mean total alexithymia score was 59.00, with a standard deviation of 11.712. The slightly lower standard deviation compared to baseline indicates potentially less variability in participants' alexithymia levels at follow-up. A t-test was conducted to assess the significance of the difference between baseline and follow-up scores on total alexithymia. The obtained t-test value was 0.388, with a significance level (two-tailed) of .70. This indicates that the difference in scores between baseline and follow-up was not statistically significant ($p > .05$), suggesting that there was no

significant change in total alexithymia from baseline to follow-up in the control group.

Table 30 compares baseline and follow-up scores of problem-focused coping among participants in the control group. At baseline, the mean problem-focused coping score was 21.17, with a standard deviation of 4.052. At the follow-up assessment, the mean problem-focused coping score was 20.20, with a standard deviation of 4.619. A Wilcoxon Signed Rank test was conducted to assess the significance of the difference between baseline and follow-up scores on problem-focused coping. The obtained z-test value was -1.24, with a significance level (two-tailed) of .21. This indicates that the difference in scores between baseline and follow-up was not statistically significant ($p > .05$), suggesting that there was no significant change in problem-focused coping from baseline to follow-up in the control group.

Table 31 compares baseline and follow-up scores on emotion-focused coping among participants in the control group. At baseline, participants reported a mean score of 27.80 on emotion-focused coping, with a standard deviation of 5.863. At the follow-up assessment, the mean score slightly increased to 28.80, with a standard deviation of 6.682. This suggests that participants' engagement in emotion-focused coping strategies may have slightly increased over time. A t-test was conducted to assess the significance of the difference between baseline and follow-up scores on emotion-focused coping. The obtained t-test value was -0.720, with a significance level (two-tailed) of .47. This indicates that the difference in scores between baseline and follow-up was not statistically significant ($p > .05$), suggesting that there was no significant change in emotion-focused coping from baseline to follow-up in the control group.

Table 32 compares baseline and follow-up scores on avoidance coping among participants in the control group. At baseline, participants reported a mean score of 20.67 on avoidance coping, with a standard deviation of 3.854. At the follow-up assessment, the mean score

slightly increased to 21.13, with a standard deviation of 5.871. This suggests that participants' engagement in avoidance coping strategies may have slightly increased over time. A t-test was conducted to assess the significance of the difference between baseline and follow-up scores on avoidance coping. The obtained t-test value was -0.458, with a significance level (two-tailed) of .65. This indicates that the difference in scores between baseline and follow-up was not statistically significant ($p > .05$), suggesting that there was no significant change in avoidance coping from baseline to follow-up in the control group.

Table 33 presents the comparison of pre-craving scores between participants in the experimental and control groups. The mean rank of pre-craving scores in the experimental group was 34.38, with a sum of ranks equal to 1031.50. In contrast, the mean rank in the control group was slightly lower at 26.62, totaling 798.50. Utilizing the Mann-Whitney U-test, the U and W test statistics were calculated as 333.5 and 798.5, respectively. The Z-test statistic, obtained from the Mann-Whitney U-test, was -1.72, with a significance level (two-tailed) of .08. Although the difference in mean ranks between the two groups showed a trend towards statistical significance, it did not reach conventional levels of significance ($p > .05$). This suggests that, before the intervention, both groups displayed relatively comparable levels of craving.

Table 34 compares the pre-intervention and baseline scores of difficulty describing feelings (alexithymia sub-scale) between participants in the experimental and control groups. In the experimental group, the mean rank for pre-difficulty describing feelings was 34.38, with a sum of ranks equal to 424.5. Conversely, in the control group, the mean rank was slightly lower at 26.62, with a sum of ranks equal to 4.842. Utilizing the Mann-Whitney U-test, the U and W test statistics were calculated as 424.5 and 889.5, respectively. The Z-test statistic, derived from the Mann-Whitney U-test, was -0.379, with a significance level (two-tailed) of .70. The comparison indicates that there were no significant

differences between the pre-intervention and baseline scores of difficulty describing feelings between the experimental and control groups. Both groups showed comparable levels of difficulty in describing feelings before any intervention or treatment was provided.

Table 35 compares the pre-difficulty identifying feelings (an alexithymia sub-scale) between participants in the experimental and control groups. In the experimental group, the mean rank for pre-difficulty identifying feelings was 33.73, with a sum of ranks equal to 1012.00. For the control group, the mean rank was 27.27, which also amounted to a sum of ranks of 818.00. Using the Mann-Whitney U-test, the U and W test statistics were calculated as 353.00 and 818.00, respectively. The Z-test statistic, derived from the Mann-Whitney U-test, was -1.44, with a significance level (two-tailed) of .14. The comparison suggests that there were no significant differences in the pre-difficulty identifying feelings between the experimental and control groups. Both groups exhibited similar levels of difficulty identifying feelings before any intervention or treatment was administered.

Table 36 compares the pre-external orientation (an alexithymia sub-scale) between participants in the experimental and control groups. In the experimental group, the mean pre-external orientation score was 24.10, with a standard deviation of 4.196. For the control group, the mean pre-external orientation score was slightly higher at 24.27, with a standard deviation of 4.842. A t-test was conducted to assess the significance of the difference between the pre-external orientation scores of the two groups. The obtained t-test value was -0.142, with a significance level (two-tailed) of .88. The comparison suggests that there were no significant differences in the pre-external orientation between the experimental and control groups.

Table 37 compares the pre-alexithymia (total) scores between participants in the experimental and control groups. In the experimental group, the mean pre-alexithymia (total) score was 63.80, with a

standard deviation of 10.314. For the control group, the mean pre-alexithymia (total) score was slightly lower at 59.60, with a standard deviation of 14.275. A t-test was conducted to assess the significance of the difference between the pre-alexithymia (total) scores of the two groups. The obtained t-test value was 1.30, with a significance level (two-tailed) of .19. The comparison suggests that there were no significant differences in the pre-alexithymia (total) scores between the experimental and control groups. Both groups exhibited similar levels of alexithymia before any intervention or treatment was provided.

Table 38 compares the pre-problem focused coping scores between participants in the experimental and control groups. In the experimental group, the mean pre-problem focused coping score was 20.23, with a standard deviation of 5.042. For the control group, the mean pre-problem focused coping score was slightly higher at 21.17, with a standard deviation of 4.052. A t-test was conducted to assess the significance of the difference between the pre-problem focused coping scores of the two groups. The obtained t-test value was -0.790, with a significance level (two-tailed) of .43. The comparison suggests that there were no significant differences in the pre-problem focused coping scores between the experimental and control groups.

Table 39 compares the pre-emotion focused coping scores between participants in the experimental and control groups. In the experimental group, the mean pre-emotion focused coping score was 29.37, with a standard deviation of 7.369. For the control group, the mean pre-emotion focused coping score was slightly lower at 27.80, with a standard deviation of 5.863. A t-test was conducted to assess the significance of the difference between the pre-emotion focused coping scores of the two groups. The obtained t-test value was 0.911, with a significance level (two-tailed) of .36. The comparison suggests that there were no significant differences in the pre-emotion focused coping scores between the experimental and control groups.

Table 40 compares the pre-avoidance coping scores between participants in the experimental and control groups. In the experimental group, the mean pre-avoidance coping score was 21.97, with a standard deviation of 4.255. For the control group, the mean pre-avoidance coping score was slightly lower at 20.67, with a standard deviation of 3.854. A t-test was conducted to assess the significance of the difference between the pre-avoidance coping scores of the two groups. The obtained t-test value was 1.24, with a significance level (two-tailed) of .22. The comparison suggests that there were no significant differences in the pre-avoidance coping scores between the experimental and control groups.

Table 41 compares the follow-up scores in craving between participants in the experimental and control groups. In the experimental group, the mean rank for follow-up craving scores was 25.18, with a sum of ranks of 755.50. In contrast, for the control group, the mean rank was higher at 35.82, with a sum of ranks of 1074.50. Utilizing the Mann-Whitney U-test, the U and W test statistics were calculated as 290.5 and 755.50, respectively. The Z-test statistic, derived from the Mann-Whitney U-test, was -2.36, with a significance level (two-tailed) of .01. The comparison suggests that there was a significant difference in follow-up craving scores between the experimental and control groups. Participants in the experimental group had significantly lower craving scores at follow-up compared to those in the control group.

Table 42 compares the follow-up scores on difficulty describing feelings (an alexithymia sub-scale) between participants in the experimental and control groups. In the experimental group, the mean follow-up score for difficulty describing feelings was 16.63, with a standard deviation of 4.817. For the control group, the mean follow-up score was higher at 20.00, with a standard deviation of 5.038. A t-test was conducted to assess the significance of the difference between the follow-up scores of the two groups. The obtained t-test value was -2.64, with a significance level (two-tailed) of .01. The comparison

suggests that there was a significant difference in follow-up scores on difficulty describing feelings between the experimental and control groups.

Table 43 compares the follow-up scores on difficulty identifying feelings (an alexithymia sub-scale) between participants in the experimental and control groups. In the experimental group, the mean follow-up score for difficulty identifying feelings was 13.83, with a standard deviation of 4.052. For the control group, the mean follow-up score was slightly higher at 15.70, with a standard deviation of 3.476. A t-test was conducted to assess the significance of the difference between the follow-up scores of the two groups. The obtained t-test value was -1.91, with a significance level (two-tailed) of .06. The comparison suggests that there was a marginally significant difference in follow-up scores on difficulty identifying feelings between the experimental and control groups. Participants in the experimental group tended to report lower levels of difficulty identifying feelings at follow-up compared to those in the control group, although this difference did not reach conventional levels of statistical significance ($p < .05$).

Table 44 compares the follow-up scores in external orientation (an alexithymia sub-scale) between participants in the experimental and control groups. In the experimental group, the mean follow-up score for external orientation was 17.40, with a standard deviation of 5.757. For the control group, the mean follow-up score was higher at 23.30, with a standard deviation of 5.127. A t-test was conducted to assess the significance of the difference between the follow-up scores of the two groups. The obtained t-test value was -4.19, with a significance level (two-tailed) of .00. The comparison suggests that there was a significant difference in follow-up scores on external orientation between the experimental and control groups. Participants in the experimental group reported significantly lower levels of external orientation at follow-up compared to those in the control group.

Table 45 compares the follow-up scores on alexithymia (total) between participants in the experimental and control groups. In the experimental group, the mean follow-up score for alexithymia (total) was 47.87, with a standard deviation of 13.119. For the control group, the mean follow-up score was higher at 59.00, with a standard deviation of 11.712. A t-test was conducted to assess the significance of the difference between the follow-up scores of the two groups. The obtained t-test value was -3.46, with a significance level (two-tailed) of .00. The comparison suggests that there was a significant difference in follow-up scores on alexithymia (total) between the experimental and control groups.

Table 46 compares the follow-up scores in problem-focused coping between participants in the experimental and control groups. In the experimental group, the mean rank for follow-up problem-focused coping scores was 36.83, with a sum of ranks of 1105.00. In contrast, for the control group, the mean rank was lower at 24.17, with a sum of ranks of 725.00. Using the Mann-Whitney U-test, the U and W test statistics were calculated as 260.00 and 725.00, respectively. The Z-test statistic, derived from the Mann-Whitney U-test, was -2.82, with a significance level (two-tailed) of .005. The comparison suggests that there was a significant difference in follow-up scores on problem-focused coping between the experimental and control groups. Participants in the experimental group demonstrated significantly higher levels of problem-focused coping at follow-up compared to those in the control group.

Table 47 compares the follow-up scores on emotion-focused coping between participants in the experimental and control groups. In the experimental group, the mean follow-up score for emotion-focused coping was 28.23, with a standard deviation of 5.835. For the control group, the mean follow-up score was slightly higher at 28.80, with a standard deviation of 6.682. A t-test was conducted to assess the significance of the difference between the follow-up scores of the two

groups. The obtained t-test value was -0.350, with a significance level (two-tailed) of .72. The comparison suggests that there was no significant difference in follow-up scores on emotion-focused coping between the experimental and control groups. Participants in both groups reported similar levels of emotion-focused coping at follow-up, which could be attributed to both groups utilizing similar coping strategies for managing emotional distress at follow-up.

Table 48 compares the follow-up scores on avoidance coping between participants in the experimental and control groups. In the experimental group, the mean rank for follow-up avoidance coping scores was 24.23, with a sum of ranks of 727.00. Conversely, in the control group, the mean rank was higher at 36.77, with a sum of ranks of 1103.00. Utilizing the Mann-Whitney U-test, the U and W test statistics were computed as 262.00 and 722.00, respectively. The Z-test statistic, derived from the Mann-Whitney U-test, was -2.79, with a significance level (two-tailed) of .005. The comparison indicates a significant difference in follow-up scores on avoidance coping between the experimental and control groups. Participants in the experimental group demonstrated significantly lower levels of avoidance coping at follow-up compared to those in the control group.

In conclusion, the results of this study provide valuable insights into the effectiveness of the Mindfulness-based Relapse Prevention (MBRP) therapy in addressing various aspects of Opioid use disorder and related psychological factors. Overall, participants in the experimental group demonstrated significant improvements across multiple measures compared to those in the control group. These improvements include reduced levels of craving, decreased difficulty in identifying and describing feelings, lower levels of alexithymia, and enhanced problem-focused coping strategies. Additionally, the experimental group exhibited reduced tendencies towards avoidance coping compared to the control group. These findings highlight the efficacy of the Mindfulness-based Relapse Prevention (MBRP) therapy

in promoting positive changes in substance use behaviors and associated psychological constructs.

DISCUSSION

The present study was conducted to study the effect of Mindfulness based Relapse Prevention (MBPR) therapy on Craving, Alexithymia and Coping styles in patients with Opioid use disorder. The study was conducted in the Department of Psychiatry, Dayanand Medical College and Hospital, Ludhiana on 60 participants, each diagnosed with Opioid use disorder as per the ICD-11. The participants were initially assessed on Craving on 3-item Craving scale, Alexithymia on Toronto Alexithymia Scale and Coping styles on Brief COPE. The participants were then divided into two groups- experimental (MBPR) and control (TAU) group. Eight individual sessions of Mindfulness based relapse prevention were carried out with the participants in Experimental group, ranging approximately two hours. Post the intervention, they were re-assessed for craving, alexithymia and coping styles on the above mentioned measures. Both the groups (experimental and control) were re-assessed on the above mentioned variables after a period of 4 months from the baseline assessment (follow up) on the same measures. Thus, the data collected was tabulated and then analysed using SPSS. The results have been discussed below in light of prevailing research evidence.

SOCIO-DEMOGRAPHIC VARIABLES

Data was described in the terms of age, educational qualification, occupation, background, family type and socio-economic status.

Age

The study was conducted on participants in the age group of 20 to 60 years. The youngest participant was of 20 years of age, while the eldest was of 60 years of age. Mean age for participants in experimental group was 34 with a standard deviation of 9.67. Mean age for participants in control group was 38.1, with a standard deviation of 11.17. For both experimental and control group, major share of participants were observed to be in the age group of 30 to 39 years (43.3% in experimental and 40% in control group). The mean age of

the groups were compared using t-test and the value obtained was not significant, (p= 0.13), thus indicating that the groups were homogenous on the basis of distribution of age.

This increasing trend could be because of the key life transitions that people go through at this age such as career pressures, family responsibilities, mid-life crises etc.

Vaseilenko et. al. (2018)[119] in his study showed an increasing trend in the late 30s to early 40s, after a decline was observed after the adolescent period. Prajapati et. al. (2019)[120] found that majority of the substance users were within the age group of 31 to 45 years. A study by Saikia & Debbarma (2020)[121] showed similar results, where highest use of substance use was seen in participants within the age-group of 25 to 49 years. Strashny (2016)[122] observed that admission that initiated substance use at the age of 25 or older reported the largest proportions of primary abuse of opioids.

Gender

The study was not restricted in terms of gender. However, all the participants in both the groups were males. As per the general observation of the researcher, majority of the participants admitted or visiting de-addiction services at DMCH, Ludhiana were also males.

The above findings could be because of the population bias and social and cultural norms of our society, where substance use is more socially acceptable and even encouraged in some cultures among males, as compared to females. Also, males may face a greater peer pressure related to its use, with ready availability in their social settings in comparison.

The findings are supported by the literature given by Arora et. al. (2016)[72], Prajapati et. al. (2019)[120], Randhava et. al., (2020)[123], where all or majority of the participants were observed to be males. Mchugh et. al., (2017)[124] observed that males tend to engage more in opioids as compared to females.

Educational Qualification

In the experimental group, 10% participants (N=3) were educated up to 8th grade, 16.7% of the participants (N= 5) were educated up to 10th grade, 40% of the participants (N= 12) were educated up to 12th grade, 23.3% participants (N= 7) were graduates and 6.7% of the participants (N=2) were post-graduates. In the control group, 13.3% participants (N= 4) were educated up to 8th grade, 33.3% of the participants (N= 10) were educated up to 10th grade, 30% of the participants (N= 9) were educated up to 12th grade, 13.3% participants (N= 4) were graduates and 13.3% of the participants (N=4) were post-graduates. The two groups were compared on educational qualification using t-test, where no statistically significant difference between the two groups was found.

This finding suggests that the two groups were matched well in terms of their educational backgrounds, ensuring that any observed differences in outcomes can be attributed to the intervention rather than differences in educational attainment.

Similar findings were observed in the study given by Arora et. al. (2016)[72], Nagrale et. al. (2018)[125] were more than half of the patients were educated beyond metric level.

Occupation

In the experimental group, 46.7% of participants (N=14) were farmers/clerical/shop owners, 3.3% (N=1) were semi-skilled/skilled workers, 6.7% (N=2) were unemployed, 3.3% (N=1) were classified as "Other," 30% (N=9) were professionals, and 10% (N=3) were students. In the control group, 46.7% of participants (N=14) were farmers/clerical/shop owners, 6.7% (N=2) were semi-skilled/skilled workers, 20% (N=6) were unemployed, 0% were classified as other, 20% (N=6) were professionals, and 6.7% (N=2) were students. The two groups were compared based on occupation using a t-test. The obtained value was not significant ($p = 0.23$), indicating no statistically significant difference between the two groups based on occupation.

This finding suggests that the two groups were matched well in terms of their occupational backgrounds, ensuring that any observed differences in outcomes can be attributed to the intervention rather than differences in the occupational background.

This is supported by the literature given by Rather et. al. (2013)[126], Arora et. al., (2016)[72]. According to a study by Radunovich et. al. (2022)[127] opioid use was seen to be increased in individuals working in agriculture, which could be because of the increased manual labour or easy access.

Background

In the experimental group, 53.3% of participants (N=16) resided in urban areas, while 46.7% (N=14) resided in rural areas. In the control group, 46.7% of participants (N=14) resided in urban areas, and 53.3% (N=16) resided in rural areas. The obtained chi-square value was 0.27, with a corresponding p-value of 0.60, indicating that the difference in distribution between the two groups based on address was not statistically significant ($p > 0.05$).

This finding suggests that the two groups were matched well in terms of their backgrounds, ensuring that any observed differences in outcomes can be attributed to the intervention rather than differences in the background.

This is supported by the literature given by Saluja et. al. (2007)[68], Arora et. al., (2016)[72], and Chavan et. al. (2019).[128]

Family Type

In the experimental group, 33.3% of participants (N=10) belonged to nuclear families, while 66.6% (N=20) belonged to joint families. In the control group, 43.3% of participants (N=13) belonged to nuclear families, and 56.7% (N=17) belonged to joint families. The obtained chi-square value was 0.63, with a corresponding p-value of 0.42. Since the p-value is greater than 0.05, the difference in the distribution of family types between the two groups is not statistically significant ($p > 0.05$).

This finding suggests that the two groups were matched well in terms of their family types, ensuring that any observed differences in outcomes can be attributed to the intervention rather than differences in the family background.

These findings are supported by the literature given by Arora et. al. (2016)[72] and Rather et. al., (2021).[129]

Socio-Economic Status

In the experimental group, 96.7% of participants (N=29) belonged to the upper socio-economic status and 3.3% participants (N=1) belonged to lower socio-economic status. In the control group, 90% of participants (N=27) belonged to the upper socio-economic status and 10% participants (N=3) belonged to lower socio-economic status. The obtained chi-square value was 1.07, with a corresponding p-value of 0.30, making the difference in the distribution of socio-economic status between the two groups statistically non-significant ($p > 0.05$).

This finding suggests that the two groups were matched well in terms of their socio-economic status, ensuring that any observed differences in outcomes can be attributed to the intervention rather than differences in the socio-economic status.

The findings could be corroborated with the literature given by Gupta et. al. (2013)[70], Arora et. al. (2016)[72] and Rather et. al. (2021).[129]

Type of Substance Use

In the experimental group, 63.3% of participants (N=19) used raw opium, 33.3% (N=10) used heroin, and 3.3% (N=1) used medicines. In the control group, 66.7% of participants (N=20) used raw opium, 30% (N=9) used heroin, and 3.3% (N=1) used medicines. The obtained t-test value was 0.23, with a corresponding p-value of 0.40, indicating that the difference in the distribution of the type of substance used between the two groups is not statistically significant ($p > 0.05$).

This result implies that the two groups' use of substance were well matched, warranting that any observed variations in results are attributable to the intervention rather than any chance factor.

These findings were supported by the literature provided by Randhawa et. al. (2020)[123], and Majumdar et. al. (2021)[130], where the highest used substance was seen to be different forms of opioids. Moreover, Singh et. al. (2021)[24] in his study highlighted the different forms of opioids that were used in different states of India, with Punjab being the second highest consumer of opioids, after Utter Pradesh.

Duration of Substance Use

In the experimental group, 16.7% of participants (N=5) reported a total duration of substance use of less than 1 year, 53.3% (N=16) reported 1-5 years, 13.3% (N=4) reported 5-10 years, 10% (N=3) reported 10-20 years, 3.3% (N=1) reported 20-30 years, and 3.3% (N=1) reported 30-40 years. In the control group, 20% of participants (N=6) reported a total duration of substance use of less than 1 year, 30% (N=9) reported 1-5 years, 26.7% (N=8) reported 5-10 years, 13.3% (N=4) reported 10-20 years, 6.7% (N=2) reported 20-30 years, and 3.3% (N=1) reported 30-40 years. The obtained chi-square value was 3.86, with a corresponding p-value of 0.56, indicating the difference as statistically non-significant ($p > 0.05$), thus making any observed variations in the results a result of the intervention and not by chance factor.

These findings can be corroborated with the literature given by Goodarzi et. al. (2011)[131] and Kumar et. al. (2013).[132]

EFFICACY OF MINDFULNESS-BASED RELAPSE PREVENTION IN OPIOID USE DISORDER

The current research aims to study the pre-, post- and follow up effect of Mindfulness-based relapse prevention on craving, alexithymia and coping styles in patients diagnosed with Opioid use disorder.

CRAVING AND MBRP

The scores of craving in pre-intervention was found to be 6.22 with a standard deviation of 2.10, indicating that, on average, participants reported relatively high levels of craving before the intervention. Following the intervention, the mean craving score decreased

significantly to 2.90, with a standard deviation of 1.81. The Z-value (-4.43) and the p-value (0.00) both indicate strong statistical significance. At the follow-up assessment, the mean craving score increased slightly to 3.73, with a standard deviation of 2.43, Z-test score of -2.21 at p-value (0.02). Thus, it can be inferred that even though craving increased slightly at follow up level, substantial reduction in the scores suggests that MBRP had a significant impact on reducing participants' craving in experimental group.

The results thus support the value of mindfulness-based interventions that help patients develop a mindful-nonjudgmental perspective on their experiences and strengthen individual's concepts like acceptance and awareness.[135]

The increase in craving scores at follow-up compared to post-intervention suggests a slight rebound or relapse in craving levels over time. This finding emphasizes the importance of ongoing support and follow-up interventions to maintain the benefits achieved during the initial intervention phase.[135]

These findings are congruent with previous literature given by Bowen et. al. (2009)[60], Witkeiwitz et. al. (2013)[136], and Yagbudi et. al. (2018).[135]

ALEXITHYMIA AND MBRP

For alexithymia total, scores before the intervention had a mean total alexithymia score of 63.80, with a standard deviation of 10.31, indicating a relatively high level of alexithymia traits. Following the intervention, there was a significant reduction in the mean total alexithymia score to 50.20, with a standard deviation of 13.42. This decrease suggests that the intervention improved participants' emotional awareness and expression, with t-test (7.22) and p-value (0.00). At the follow-up assessment, the mean total alexithymia score was 47.87, with a standard deviation of 13.11, with a t-test (1.99) and p-value (0.05).

These findings highlight the effectiveness of the intervention in reducing alexithymia. This indicates that mindfulness-based

interventions can thus have lasting effects on participants emotional processing and well being beyond the immediate post-intervention period.

The current findings are supported by the literature given by Byrne et. al. 2013[137]; Bornemann et. al. 2017[138]; Norman et. al. 2019.[139] Further, there has not been much literature on the effect on mindfulness based relapse prevention on alexithymia in patients with substance use and thus, the current study findings adds on to the gap in literature.

Difficulty describing feelings

For alexithymia difficulty describing feelings domain, before the intervention, the experimental group head a mean of 22.57, with standard deviation of 4.66. Following the intervention, there was a notable decrease in the mean difficulty describing feelings score to 17.43, with a standard deviation of 5.00, with a t-test score (7.06) and p-value (0.00). This reduction indicates that the intervention had a statistically significant impact on improving participants' ability to describe their feelings.

At the follow up, the mean was 16.63, SD= 4.81, with a t-test value of 1.44 and p-value (0.15) resulting in non-significant results, highlighting the importance of continued monitoring to maintain the improvement in participants emotional processing skills over long period.

These findings suggest that Mindfulness based relapse prevention intervention is effective in improving participants difficulty in describing feelings.

Findings by da le Fuente Arias et. al. 2010[140]; Viding et. al., 2015[141]; and Bornemann et. al. 2017[138] are congruent with the findings of the current research.

Difficulty identifying feelings

For alexithymia difficulty describing feelings domain, before the intervention, participants exhibited a mean of 17.13, with a standard deviation of 3.85. Following the intervention, there was a reduction in the mean score to 14.83, with a standard deviation of 4.18, with t-test value (3.44) and p-value (0.00), indicating statistically significant

difference. This decline suggests an improvement in participants' ability to identify their feelings after the intervention. At the follow up, mean difficulty identifying feelings score was 13.83, with a standard deviation of 4.05, with a t-test value (2.23) and p-value (0.03), suggesting difference in scores between post-intervention and follow-up was statistically significant, indicating continued improvement in participants' ability to identify their feelings at the follow-up assessment compared to post-intervention.

These findings suggest that Mindfulness based relapse prevention intervention is effective in improving participants difficulty in identifying feelings.

The current findings of significant reduction in alexithymia-difficulty identifying feelings domain, were supported by the literature given by da le Fuente Arias et. al. 2010[140]; Viding et. al., 2015[141]; and Bornemann et. al. 2017.[138]

External orientation

For alexithymia external orientation domain, before the intervention, participants exhibited a mean external orientation score of 24.10, with a standard deviation of 4.19, indicating that there was a high level of external focus and reliance on external stimuli to guide behaviour in participants. Following the intervention, there was a significant reduction in the mean external orientation score to 17.93, with a standard deviation of 5.62, with t-test (7.03) and p-value (0.00). At the follow up, mean was 17.40, standard deviation of 5.75, with t-test (.886) and p-value (.38), indicating no statistically significant difference.

These findings suggest a statistically significant difference in external orientation from pre-intervention to post-intervention. However, the difference between post-intervention and follow up scores was found to be non-significant.

The current findings were corroborated with previous findings in the field given by da le Fuente Arias et. al. 2010[140]; Viding et. al., 2015[141]; and Bornemann et. al. 2017.[138]

COPING STYLES AND MBRP

Problem focused coping

On Problem focused coping domain of coping styles, the participants before the intervention had a mean (20.23) and standard deviation (5.04). Following the intervention, there was a notable increase in the mean problem-focused coping score to 23.00, with a standard deviation of 5.15. with t-test (-3.60) and p-value (0.001). This increase suggests that the intervention led to a statistically significant enhancement in participants' utilization of problem-focused coping strategies post-intervention.

At the follow-up assessment, the mean problem-focused coping score was 23.57, with a standard deviation of 4.04, t-test value (-0.754) and p-value (.45), indicating no statistically significant difference. This suggests that, on average, participants' utilization of problem-focused coping strategies remained relatively stable or slightly improved over time from the post-intervention period to the follow-up assessment.

Various recent researches have highlighted the relationship between increased mindfulness and problem-focused or approach-oriented coping styles. Thus, the findings of the current study corroborates with Weinstein et. al. 2009[142]; Hanley et. al. 2014[143], Wu et. al., 2019[144], Krause et. al. 2023.[145] Roos et. al., (2021)[146] gave that mindfulness training tends to facilitate one to distance themselves from any distressing thoughts and feelings and thus leads to a clear awareness and recognition of internal and external contextual circumstances, supporting an individual to deal effectively with the stressors. There has not been much literature on the effect on mindfulness based relapse prevention on coping styles in patients with substance use and thus, the current study findings adds on to the gap in literature.

Emotion focused coping

On the emotion focused coping domain of coping styles, the participants, before the intervention had mean (29.37) and a standard deviation (7.36). Following the intervention, the mean emotion-focused coping score decreased slightly to 28.53, standard deviation of 5.90, with t-test value (0.797) and p-value (.43) This suggests that, on

average, participants' utilization of emotion-focused coping strategies decreased slightly after the intervention, however was not statistically significant.

At the follow-up assessment, the mean emotion-focused coping score was 28.23, with a standard deviation of 5.83, with t-test value (0.303) and p-value (.76). This indicates that, on average, participants continued to utilize emotion-focused coping strategies at a similar level from the post-intervention period to the follow-up assessment.

Thus, these findings suggest that there was no statistically significant effect of mindfulness based relapse prevention on emotional focused coping of the patients.

Some of the studies that have shown the effect on Mindfulness based interventions on coping styles are Ahmadvand et. al. 2017[147], Zandi et. al. 2021[148] and Krause et. al. 2023.[145] However, there is a dearth in the literature on use of Mindfulness based relapse prevention specifically on coping styles in patients with substance use.

Avoidance focused coping

On the avoidance focused domain of coping styles, before the intervention, participants had a mean avoidance coping score of 21.97, with a standard deviation of 4.255. This indicates their tendency to engage in avoidance coping strategies, such as denial, distraction and substance use, to manage stressors or challenges. Following the intervention, the mean avoidance coping score decreased to 17.13, standard deviation of 5.806, with z-test value (-3.94) and p-value (0.00), demonstrating a statistically significant difference. This suggests that, on average, participants' utilization of avoidance coping strategies decreased after the intervention, indicating potentially healthier coping responses. At the follow-up assessment, the mean avoidance coping score was 17.20, standard deviation of 5.774, with z-test value (-0.023) and p-value (0.90). This suggests that the difference in scores between post-intervention and follow-up was not statistically significant.

Overall, the results indicate that participants continued to show lower participation in avoidance coping strategies at the follow-up evaluation,

indicating potential sustainability of the intervention's impact on promoting more adaptive coping mechanisms among participants.

Some of the studies that have shown the effect on Mindfulness based interventions on coping styles are Ahmadvand et. al. 2017[147], Zandi et. al. 2021[148] and Krause et. al. 2023.[145] There has not been much literature on the effect on mindfulness based relapse prevention on coping styles in patients with substance use and thus, the current study findings adds on to the gap in literature.

COMPARSION OF MINDFULNESS BASED RELAPSE PREVENTION AND TREATMENT AS USUAL

The current research aimed to compare the effect of Mindfulness-based relapse prevention and treatment as usual on craving, alexithymia and coping styles in patients diagnosed with Opioid use disorder.

Further, in order to justify any difference between the two groups as attributable to the intervention and not on the difference in pre-intervention scores, statistical analysis for all the variables was done before giving any kind of treatment to both experimental and control group. The analysis of all the variables and sub-variables came out to be statistically non-significant, as seen from the result portion.

CRAVING

On the follow up scores for craving, for the experimental group, the mean rank (25.18), and sum of ranks (755.50) were decreased in comparison of control group, mean rank (35.82) and sum of ranks (1074.50). The Z-test statistic, derived from the Mann-Whitney U-test, was -2.36, with a significance level (0.01), indicating significant difference between the two groups.

These findings indicate that mindfulness based relapse prevention has a beneficial effect on reducing craving levels as compared to treatment as usual.

These findings are congruent with previous literature given by Bowen et. al. (2009)[60], Witkeiwitz et. al. (2013)[136], and Yagbudi et. al. (2018).[135]

ALEXITHYMIA

On the total score of alexithymia, in the experimental group, the mean follow-up score for alexithymia (total) was 47.87, with a standard deviation of 13.119. For the control group, the mean follow-up score was higher at 59.00, with a standard deviation of 11.712. The obtained t-test value was -3.46 with p-value (0.00), showing a significant difference between the two groups.

Participants in experimental group reported significantly lower levels of alexithymia at follow up, as compared to those in control group, thus indicating effectiveness of mindfulness based relapse prevention therapy.

The current findings are supported by the literature given by Byrne et. al. 2013[137]; Bornemann et. al. 2017[138]; Norman et. al. 2019.[139]

Difficulty describing feelings

On difficulty describing feelings domain of alexithymia, in the experimental group, the mean follow-up score was 16.63, with a standard deviation of 4.817. For the control group, the mean follow-up score was higher at 20.00, with a standard deviation of 5.038. The obtained t-test value was -2.64, with p-value of .01, revealing a statistically significant difference between the two groups.

These findings corroborate with our current study, suggesting that mindfulness based relapse prevention is more effective in reducing difficulty describing feelings as compared to treatment as usual.

Findings by da le Fuente Arias et. al. 2010[140]; Viding et. al., 2015[141]; and Bornemann et. al. 2017[138] are congruent with the findings of the current research.

Difficulty identifying feelings

For difficulty identifying feelings domain of alexithymia, the mean follow up scores in the experimental group was found to be 13.83, with standard deviation of 4.052, whereas, for the control group, the mean

was slightly higher at 15.70, with standard deviation of 3.476. The obtained t-test value was -1.91, with p-value (0.06), indicating that there was a marginally significant difference, however it did not reach the conventional levels of statistical significance.

These findings suggest towards a potential trend towards improvement in the experimental group, as compared to control group, however this may require either a large sample or long-term intervention.

These findings were supported by the literature given by da le Fuente Arias et. al. 2010[140]; Viding et. al., 2015[141]; and Bornemann et. al. 2017.[138]

External orientation

For external orientation domain of alexithymia, in the experimental group, the mean follow-up score was 17.40, with a standard deviation of 5.757. For the control group, the mean follow-up score was higher at 23.30, with a standard deviation of 5.127. The obtained t-test value was -4.19, with a significance level (two-tailed) of .00, designating statistically significant difference.

These findings suggests the effectiveness of the mindfulness based relapse prevention in addressing alexithymia-related difficulties among participants in the experimental group, as compared to treatment as usual.

The current findings were corroborated with previous findings in the field given by da le Fuente Arias et. al. 2010[140]; Viding et. al., 2015[141]; and Bornemann et. al. 2017.[138]

COPING STYLES

Problem focused coping

On problem focused coping domain of coping styles, the mean rank score for the experimental group was 36.83, with sum of ranks of 1105.00. In contrast, for the control group, the mean rank was lower at 24.17, with a sum of ranks of 725.00. The Z-test statistic was -2.82, with p-value of .005, signifying a statistically significant difference between the two groups.

These findings suggests that mindfulness based relapse prevention is more effective in promoting problem focused coping as compared to treatment as usual.

Previous literature aligning with our current study was given by Weinstein et. al. 2009[142]; Hanley et. al. 2014[143], Wu et. al., 2019[144], Krause et. al. 2023.[145]

Emotion focused coping

On emotion focused coping domain of coping styles, the mean follow-up score for experimental group was 28.23, with a standard deviation of 5.835. For the control group, the mean follow-up score was slightly higher at 28.80, with a standard deviation of 6.682. The obtained t-test value was -0.350, with a significance level (two-tailed) of .72, demonstrating no statistically significant difference between the two groups.

Thus, participants in both the groups were seen to have similar level of emotion focused coping at follow up, which could be attributed to both groups utilizing similar strategies to manage emotions.

There has not been much literature on the difference between mindfulness based relapse prevention and treatment as usual on emotion focused coping in patients with opioid use. The current study's findings add to this gap in literature.

Avoidance focused coping

For avoidance focused coping domain of coping styles, in the experimental group, the mean rank for follow-up scores was 24.23, with a sum of ranks of 727.00. Conversely, in the control group, the mean rank was higher at 36.77, with a sum of ranks of 1103.00. The obtained Z-test statistic was -2.79, with p-value of 0.005. The comparison indicates a significant difference in follow-up scores on avoidance coping between the experimental and control groups, with experimental group demonstrating lower levels of avoidance coping as compared to control group.

These findings thus imply that mindfulness based relapse prevention is operative in promoting more adaptive coping mechanism than treatment as usual.

There has not been much literature on the difference between mindfulness based relapse prevention and treatment as usual on avoidance coping in patients with opioid use. The current study's findings add to this gap in literature.

Thus, on the basis of results discussed above, use of Mindfulness Based Relapse Prevention (MBRP) showed significant positive results in terms of Craving, Alexithymia and Coping styles in patients with Opioid use disorder. These findings were supported by previous literature. The study also filled in gaps in research by showing the effect of MBRP on specific coping styles of emotion focused and avoidance focused coping. Moreover, the study also adds on the scarce literature on effect of MBRP on psychological correlates of alexithymia in substance use patients. Patients in the experimental group were also observed to have improved substantially in terms of craving, alexithymia and coping styles when compared with the control group, who received treatment as usual. Thus, the use of MBRP shows promising results as a therapeutic intervention in the field of Substance use disorders in Punjab, and thus can be used for relapse prevention with other substances like alcohol, nicotine, cocaine, and other stimulants.

LIMITATIONS

1. The sample size of the study was small.
2. The study was not representative of the population in terms of gender.
3. The study was limited in terms of educational qualification and age group because of the mindfulness-based practices incorporated in the intervention. Substance abuse is found more amongst illiterates, adolescents and elderly, .
4. The sample was limited in the terms of substance included (only opioids). Use of many other substances is prevalent in Punjab.
5. The current study was a hospital-based study in a tertiary care hospital in the urban area of Punjab. This might limit the generalization of the study to the Indian population as a whole as many of the substance abusers belong to rural areas.
6. Variables such as relapse rate, quality of life, cognitive styles could have also been incorporated in the study, in order to get a holistic view.

SUMMARY AND CONCLUSION

The current study aimed to study the effect of Mindfulness based Relapse Prevention therapy on craving, alexithymia and coping styles in pateints with Opioid use Disorder. The study was conducted in the Department of Psychiatry, Dayanand Medical College and Hospital, Ludhiana on 6 patients, each diagnosed with opioid use disorder, as per ICD-11. Socio-demographic profile of the participants was taken. They participants were initially assessed on Craving on 3-item Craving scale, Alexithymia on Toronto Alexithymia Scale and Coping styles on Brief COPE. The participants were then divided into two groups- experimental (MBPR) and control (TAU) group. Eight individual sessions of Mindfulness based relapse prevention were carried out with the participants in Experimental group, ranging approximately two hours. Post the intervention, they were re-assessed for craving, alexithymia and coping styles on the above mentioned measures. Both the groups (experimental and control) were re-assessed on the above mentioned variables after a period of 4 months from the baseline assessment (follow up) on the same measures. Thus, the data collected was tabulated and then analysed using SPSS. The results were discussed in light of existing research evidence.

The following points were noted in the current study:

- Mean age for participants in experimental group was 34. Mean age for participants in control group was 38.1.
- All the participants in both the group were males.
- Majority of the participants in the experimental group were educated up to 12^{th} grade (40%). Majority of the participants in the control group were educated up to 10^{th} grade (33.3%).
- Majority of the participants in both the groups were farmers/clerical/ shop owners (46.7% and 46.7%).
- Majority of the participants in the experimental group belonged to urban areas (53.3%). Majority of the participants in the control group resided in rural areas (53.3%).

- Majority of the patients in the both the groups belonged to joint families (66.6% and 56.7%).
- Majority of the patients in the both the groups belonged to upper socio-economic status (96.7% and 90%).
- Majority of the patients in the both the groups consumed raw form of opium (63.3% and 66.7%).
- Majority of the patients in the both the groups consumed from 1 to 5 years duration (53.3% and 30%).
- There was a significant decrease in the mean scores of craving from pre to post MBRP intervention in the experimental group (6.22 to 2.90).
- There was a significant difference in the mean scores of craving from post intervention to follow up scores in the experimental group (2.90 to 3.73).
- There was a significant decrease in the mean scores of total alexithymia from pre to post MBRP intervention in the experimental group (63.80 to 50.20).
- There was a significant decrease in the mean scores of total alexithymia from post MBRP intervention to follow up in the experimental group (50.20 to 47.87).
- There was a significant decrease in the mean scores of difficulty describing feelings-a subscale of alexithymia from pre to post MBRP intervention in the experimental group (22.57 to 17.43).
- There was a significant decrease in the mean scores of difficulty describing feelings-a subscale of alexithymia from post MBRP intervention to follow up scores in the experimental group (17.43 to 16.63).
- There was a significant decrease in the mean scores of difficulty identifying feelings-a subscale of alexithymia from pre to post MBRP intervention in the experimental group (17.13 to 14.83).
- There was a significant decrease in the mean scores of difficulty identifying feelings-a subscale of alexithymia from post MBRP intervention to follow up scores in the experimental group (14.83 to 13.83).

- There was a significant decrease in the mean scores of external orientation-a subscale of alexithymia from pre to post MBRP intervention in the experimental group (24.10 to 17.93)
- There was no significant decrease in the mean scores of external orientation-a subscale of alexithymia from post MBRP intervention to follow up scores in the experimental group (17.93 to 17.40)
- There was a significant increase in the mean scores of problem-focused coping- a subscale of coping styles from pre to post MBRP intervention in the experimental group (20.23 to 23.00).
- There was no significant difference in the mean scores of problem-focused coping- a subscale of coping styles from post MBRP intervention to follow up scores in the experimental group (23.00 to 23.57).
- There was no significant difference in the mean scores of emotion-focused coping- a subscale of coping styles from pre to post MBRP intervention in the experimental group (29.37 to 28.53).
- There was no significant difference in the mean scores of emotion-focused coping- a subscale of coping styles from post MBRP intervention to follow up scores in the experimental group (28.53 to 28.23)
- There was a significant decrease in the mean scores of avoidance-focused coping- a subscale of coping styles from pre to post MBRP intervention in the experimental group (21.97 to 17.13).
- There was no significant difference in the mean scores of avoidance focused coping- a subscale of coping styles from post MBRP intervention to follow up scores in the experimental group (17.13 to 17.20).
- The experimental and control groups differ significantly on the follow up scores of craving.
- The experimental and control groups differ significantly on the follow up scores of alexithymia (total)
- The experimental and control groups differ significantly on the follow up scores of difficulty describing feelings-alexithymia subscale.

- The experimental and control groups did not differ significantly on the follow up scores of difficulty identifying feelings-alexithymia subscale..
- The experimental and control groups differ significantly on the follow up scores of external orientation- alexithymia subscale.
- The experimental and control groups differ significantly on the follow up scores of problem focused coping – domain of coping style.
- The experimental and control groups did not differ significantly on the follow up scores of emotion focused coping – domain of coping style.
- The experimental and control groups differ significantly on the follow up scores of avoidance focused coping – domain of coping style.

To conclude, Mindfulness Based Relapse Prevention (MBRP) showed positive results in terms of Craving, Alexithymia and Coping styles in patients with Opioid use disorder. These findings were supported by previous literature. The study also filled in gaps in research by showing the effect of MBRP on specific coping styles of emotion focused and avoidance focused coping. Moreover, the study also adds on the scarce literature on effect of MBRP on psychological correlates of alexithymia in substance use patients. Patients in the experimental group were also observed to have improved substantially in terms of craving, alexithymia and coping styles when compared with the control group, who received treatment as usual. Thus, the use of MBRP showed promising results as a therapeutic intervention in the field of Substance use disorders in Punjab. Future interventions for users of substance could be planned on the mindfulness based relapse prevention model.

FUTURE DIRECTIONS

The findings of the present study showed the effectiveness of MBRP in drug craving, alexithymia and coping styles in patients with Opioid Use Disorder. Further studies can focus on assessing long term follow up, to help understand the durability of the intervention's effect and its potential for long term recovery. . Studies on use of MBRP on other substances prevalent in Punjab like cannabinoids, sedatives, cocaine, stimulants, hallucinogens, tobacco, volatile solvents and prescription drugs could be very useful in planning effective therapeutic interventions. Further research on the effectiveness of MBRP on a Punjabi population could be done with a bigger sample size and including participants from all genders and all educational qualifications. Comparison studies in the domain of substance use across urban and rural areas, comparison of efficacy of MBRP and other therapy models could yield beneficial data. Other variables like triggers associated with substance use, social perception regarding substance use, relapse rates, comorbidities with other mental disorders could also be incorporated into in-depth studies on substance use in the region.

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SOCIO-DEMOGRAPHIC PROFORMA

S.NO: - **Date:**

1. NAME:

2. AGE:

3. SEX: - Male/ Female

4. MRD.NO: -

5. Education-

a) Illiterate b) Up to Matric
c) 10th d) 12th e) Graduate f) Postgraduate

6. Occupation-

a) Farmer/Clerical/Shopkeeper b) Semi-skilled/skilled worker
c) Unemployed d) Other
e) Professional f) Student

7. Address- a) Urban b) Rural

8. Contact no.-

9. Family Type- a) Nuclear b) Joint

10. Education

Professional degree
Graduate or postgraduate
Intermediate or post high school diploma
High school certificate
Middle school certificate
Primary school certificate
Illiterate

11. Occupation

Professional
Semi- professional
Clerical, shop owner/farm
Semi-skilled worker
Unskilled worker
Unemployed

12. Monthly income of the family

>52,734
26,335-52,733
19,759-26,354
13,161- 19,758
7,887-13,160
2,641-7,886
<2,640

13. Socio economic status

Upper
Upper middle
Lower middle
Upper lower
Lower

Signature of Candidate **Signature of Supervisor**

14. Diagnosis:

15. Pharmacological treatment history:

16. Type of substance use:

17. Total duration of substance use:

18. Frequency of use:

19. Last consumption:

Signature of Candidate **Signature of Supervisor**

20. PSYCHOTHERAPEUTIC INTERVENTIONS (for experimental group):

	CRAVING SCALE	TORONTO ALEXITHYMIA SCALE				Brief-COPE		
		DIFFICULTY DESCRIBING FEELINGS	DIFFCIULTY IDENTIFYING FEELINGS	EXTERNAL ORIENTATION	TOTAL	PROBLEM-FOCUSED COPING	EMOTION FOCUSED COPING	AVOIDANCE FOCUSED COPING
PRE-INTERVENTION SCORES								
SESSION 1								
SESSION 2								
SESSION 3								
SESSION 4								
SESSION 5								
SESSION 6								
SESSION 7								
SESSION 8								
POST INTERVENTION SCORES								
FOLLOW UP SCORES								

21. PSYCHOTHERAPEUTIC INTERVENTIONS (for control group):

	CRAVING SCALE	TORONTO ALEXITHYMIA SCALE				Brief-COPE		
		DIFFICULTY DESCRIBING EMOTIONS	DIFFICULTY IDENTIFYING EMOTIONS	EXTERNAL ORIENTATION	TOTAL	PROBLEM FOCUSED COPING	EMOTION FOCUSED COPING	AVOIDANCE FOCUSED COPING
BASELINE ASSESSMENT								
FOLLOW UP								

CONTACT NO.

Signature of Candidate **Signature of Supervisor**

3-ITEM CRAVING SCALE

"Please rate how strong your desire was to use in the past 24 hours."

1 2 3 4 5 6 7 8 9

"Please imagine yourself in the environment in which you previously used drugs or alcohol. If you were in this environment today, what is the likelihood you would use?"

1 2 3 4 5 6 7 8 9

"Please rate how strong your urges are for drugs or alcohol when something in the environment reminds you of it."

1 2 3 4 5 6 7 8 9

TORONTO ALEXITHYMIA SCALE (TAS-20)

Please indicate the extent to which you agree or disagree with each of the following statements

		Strongly Agree	**Agree**	**Neutral**	**Disagree**	**Strongly disagree**
		1	**2**	**3**	**4**	**5**
1	I am often confused about what emotion I am feeling					
2	It is difficult for me to find the right words for my feelings					
3	I have physical sensations that even doctors don't understand					
4	I am able to describe my feelings easily(R)					
5	I prefer to analyse problems rather than just describe them (R)					
6	When I am upset, I don't know if I am sad, frightened, or angry					
7	I am often puzzled by sensations in my body					
8	I prefer to just let things happen rather than to understand why they turned out that way					
9	I have feelings that I can't quite identify					
10	Being in touch with emotions is essential (R)					
11	I find it hard to describe how I feel about people					
12	People tell me to describe my feelings more					
13	I don't know what's going on inside me					
14	I often don't know why I am angry					
15	I prefer talking to people about their daily activities rather than their feelings					
16	I prefer to watch "light" entertainment shows rather than psychological dramas					
17	It's difficult for me to reveal my innermost feelings, even to close friends					
18	I can feel close to someone, even in moments of silence (R)					
19	I find examination of my feelings useful in solving personal problems (R)					
20	Looking for hidden meanings in movies or plays distracts from their enjoyment					

Brief COPE (PTLDS)

These items deal with *ways you've been coping with stress in your life, specifically any problems associated with your overall health in the past several months. If you have not had any health problems in the last several months, then rate the items based on how you have been coping with any stress in your life, across the past several months.* There are many ways to try to deal with problems. These items ask what you've been doing to cope with these problems. Obviously, different people deal with things in different ways, but I'm interested in how you've tried to deal with it.

Each item says something about a particular way of coping. I want to know to what extent you've been doing what the item says. How much or how frequently. Don't answer on the basis of whether it seems to be working or not—just whether or not you're doing it. Use these response choices. Try to rate each item separately in your mind from the others. Make your answers as true FOR YOU as you can.

1 = I haven't been doing this at all
2 = I've been doing this a little bit
3 = I've been doing this a medium amount
4 = I've been doing this a lot

I am answering these questions based on (please check one): ☐ Overall health problems ☐ Other, non-health stressors

1. I've been turning to work or other activities to take my mind off things. **1 2 3 4**
2. I've been concentrating my efforts on doing something about the situation I'm in. **1 2 3 4**
3. I've been saying to myself "this isn't real." **1 2 3 4**
4. I've been using alcohol or other drugs to make myself feel better. **1 2 3 4**
5. I've been getting emotional support from others. **1 2 3 4**
6. I've been giving up trying to deal with it. **1 2 3 4**
7. I've been taking action to try to make the situation better. **1 2 3 4**
8. I've been refusing to believe that it has happened. **1 2 3 4**
9. I've been saying things to let my unpleasant feelings escape. **1 2 3 4**
10. I've been getting help and advice from other people. **1 2 3 4**
11. I've been using alcohol or other drugs to help me get through it. **1 2 3 4**

12. I've been trying to see it in a different light, to make it seem more positive.	1 2 3 4
13. I've been criticizing myself.	1 2 3 4
14. I've been trying to come up with a strategy about what to do.	1 2 3 4
15. I've been getting comfort and understanding from someone.	1 2 3 4
16. I've been giving up the attempt to cope.	1 2 3 4
17. I've been looking for something good in what is happening.	1 2 3 4
18. I've been making jokes about it.	1 2 3 4
19. I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.	1 2 3 4
20. I've been accepting the reality of the fact that it has happened.	1 2 3 4
21. I've been expressing my negative feelings.	1 2 3 4
22. I've been trying to find comfort in my religion or spiritual beliefs.	1 2 3 4
23. I've been trying to get advice or help from other people about what to do.	1 2 3 4
24. I've been learning to live with it.	1 2 3 4
25. I've been thinking hard about what steps to take.	1 2 3 4
26. I've been blaming myself for things that happened.	1 2 3 4
27. I've been praying or meditating.	1 2 3 4
28. I've been making fun of the situation.	1 2 3 4

KEY TO MASTER CHART

SES	Socio-economic status
DDF	Difficulty describing feelings (sub-scale of TAS-20)
DIF	Difficulty identifying feelings (sub-scale of TAS-20)
EO	External orientation (sub-scale of TAS-20)
TOTAL	Total scores on Alexithymia scale
PFC	Problem-focused coping (sub-scale of Brief-COPE)
EFC	Emotion-focused coping (sub-scale of Brief-COPE)
AC	Avoidant coping (sub-scale of Brief-COPE)
PRE-	Pre-intervention scores
POST-	Post-intervention scores
FU-	Follow up scores

S.NO.	MRD	NAME	CONDITION	AGE	SEX	EDUCATION	OCCUPATION	ADDRESS	FAMILY TYPE	SES	TYPE OF SUBSTANCE	TOTAL DURATION (years)
1	1641714	H.S.	EXPERIMENTAL	47	M	8th	Farmer/ Clerical/ Shopkeeper	Rural	Nuclear	Upper	Raw opium	5
2	1645432	K.M.	EXPERIMENTAL	42	M	12th	Farmer/ Clerical/ Shopkeeper	Urban	Joint	Upper	Raw opium	0.12
3	1642097	A.P.	EXPERIMENTAL	28	M	Graduate	Professional	Urban	Joint	Upper	Raw opium	4
4	1632078	E.	EXPERIMENTAL	20	M	12th	Unemployed	Urban	Joint	Upper	Heroine	0.66
5	967286	M.S.	EXPERIMENTAL	33	M	Graduate	Professional	Urban	Joint	Upper	Raw opium	3.5
6	1164571	A.S.	EXPERIMENTAL	36	M	12th	Farmer/ Clerical/ Shopkeeper	Rural	Nuclear	Upper	Raw opium	2
7	1534780	A.K.	EXPERIMENTAL	33	M	Graduate	Professional	Urban	Joint	Upper	Raw opium	2
8	1634763	V.J.	EXPERIMENTAL	25	M	Graduate	Unemployed	Rural	Joint	Upper	Raw opium	3
9	1691381	N.	EXPERIMENTAL	47	M	8th	Farmer/ Clerical/ Shopkeeper	Rural	Joint	Lower	Raw opium	23
10	1622984	R.S.	EXPERIMENTAL	38	M	Post-graduate	Professional	Urban	Nuclear	Upper	Raw opium	8
11	1412889	A.	EXPERIMENTAL	30	M	12th	Professional	Urban	Joint	Upper	Heroine	0.5
12	1412886	B.	EXPERIMENTAL	28	M	Post-graduate	Professional	Rural	Nuclear	Upper	Raw opium	1.5
13	1357281	H.	EXPERIMENTAL	45	M	10th	Farmer/ Clerical/ Shopkeeper	Rural	Nuclear	Upper	Heroine	6
14	963493	S.S.	EXPERIMENTAL	33	M	12th	Farmer/ Clerical/ Shopkeeper	Rural	Joint	Upper	Raw opium	2
15	1327773	G.S.	EXPERIMENTAL	33	M	8th	Farmer/ Clerical/ Shopkeeper	Rural	Joint	Upper	Narcotic medication	3
16	1413920	S.	EXPERIMENTAL	23	M	12th	Student	Urban	Nuclear	Upper	Heroine	4
17	1601664	J.S.	EXPERIMENTAL	30	M	12th	Semi-skilled/ Skilled worker	Rural	Joint	Upper	Heroine	1.5
18	1607283	J.S.	EXPERIMENTAL	30	M	12th	Farmer/ Clerical/ Shopkeeper	Urban	Joint	Upper	Heroine	11
19	1651090	S.S.	EXPERIMENTAL	36	M	12th	Farmer/ Clerical/ Shopkeeper	Urban	Nuclear	Upper	Raw opium	8
20	963413	S.S.	EXPERIMENTAL	33	M	10th	Farmer/ Clerical/ Shopkeeper	Rural	Joint	Upper	Raw opium	1
21	1641654	N.P.	EXPERIMENTAL	20	M	12th	Student	Urban	Nuclear	Upper	Heroine	0.58
22	663654	G.S.	EXPERIMENTAL	32	M	10th	Farmer/ Clerical/ Shopkeeper	Rural	Joint	Upper	Raw opium	3
23	1690791	P.K.	EXPERIMENTAL	48	M	12th	Professional	Urban	Joint	Upper	Raw opium	7
24	860360	L.S.	EXPERIMENTAL	29	M	10th	Farmer/ Clerical/ Shopkeeper	Rural	Joint	Upper	Heroine	11
25	1602290	G.S.	EXPERIMENTAL	32	M	Graduate	Professional	Urban	Nuclear	Upper	Heroine	2
26	1602995	H.S.	EXPERIMENTAL	28	M	Graduate	Professional	Urban	Joint	Upper	Raw opium	3
27	1616996	J.S.	EXPERIMENTAL	28	M	12th	Other	Urban	Joint	Upper	Raw opium	4
28	1462622	G.K.	EXPERIMENTAL	21	M	Graduate	Student	Urban	Nuclear	Upper	Heroine	1.5
29	1340289	C.S.	EXPERIMENTAL	58	M	8th	Farmer/ Clerical/ Shopkeeper	Rural	Joint	Upper	Raw opium	31
30	1508882	M.S.	EXPERIMENTAL	54	M	10th	Farmer/ Clerical/ Shopkeeper	Rural	Joint	Upper	Raw opium	12
31	1681366	P.K.	CONTROL	38	M	10th	Farmer/ Clerical/ Shopkeeper	Rural	Joint	Upper	Raw opium	3
32	1634648	S.S.	CONTROL	22	M	Graduate	Student	Rural	Joint	Upper	Raw opium	1

S.NO.	MRD	AMOUNT	LAST CONSUMPTION (days)	PRE-CRAVING	PRE-DDF	PRE-DIF	PRE-EO	PRE-TOTAL	PRE-PFC	PRE-EFC	PRE-AC	POST-CRAVING	POST-DDF
1	1641714	1	1	8	24	18	26	68	21	24	13	4.33	19
2	1645432	1	1	6.66	23	18	22	63	15	29	23	2	16
3	1642097	10	3	7	23	14	24	61	30	31	25	4	19
4	1632078	1	1	6.66	17	13	16	46	20	21	20	1.33	5
5	967286	2	60	2.66	18	12	20	50	27	29	17	1	14
6	1164571	3	5	1	20	17	27	64	22	31	18	1	14
7	1534780	5	10	8	24	21	30	75	15	29	20	2	14
8	1634763	3	60	7	23	22	21	66	26	32	21	2.33	16
9	1691381	3	270	9	24	16	29	69	24	38	26	7.66	20
10	1622984	5	20	5.66	27	15	30	72	20	28	28	6	24
11	1412889	2	5	8	27	19	17	63	25	38	26	1.33	22
12	1412886	4	4	7.33	25	13	20	58	28	48	20	2	12
13	1357281	1	30	8	26	17	25	68	18	30	19	3.66	17
14	963493	2	10	3.66	25	22	26	73	21	40	21	5	25
15	1327773	4	30	3.66	30	22	32	84	17	27	28	2.66	24
16	1413920	1	5	6.33	18	12	16	46	24	34	20	4.33	16
17	1601664	2	1	7.66	23	18	29	70	17	25	19	2	16
18	1607283	3	60	7.66	14	10	23	47	25	29	18	2.66	13
19	1651090	2	210	5.66	27	20	21	68	13	33	25	6	23
20	963413	0.5	30	5.66	27	21	27	75	15	25	26	1	13
21	1641654	2	2	7.66	19	10	23	52	19	19	17	2.33	16
22	663654	1	30	8.66	27	21	27	75	15	13	25	4	17
23	1690791	2	1	9	10	12	24	46	16	21	18	2.66	9
24	860360	5	2	6.66	23	21	27	71	20	28	28	1	17
25	1602290	2	1	7.66	14	13	24	51	28	39	25	1	13
26	1602995	2	60	3.33	23	18	23	64	12	16	16	3	21
27	1616996	2	90	6	25	21	19	65	14	34	28	2	25
28	1462622	1	210	3	28	20	25	73	25	30	19	2	21
29	1340289	10	1	6.66	24	21	28	73	20	26	22	6	26
30	1508882	6	30	3	19	17	22	58	15	34	28	1	16
31	1681366	0.5	30	4	24	16	25	65	21	27	18	x	x
32	1634648	0.25	2	1.66	25	13	25	63	25	30	19	x	x

S.NO.	MRD	POST-DIF	POST-EO	POST-TOTAL	POST-PFC	POST-EFC	POST-AC	FU-CRAVING	FU-DDF	FU-DIF	FU-EO	FU-TOTAL	FU-PFC	FU-EFC	FU-AC
1	1641714	14	16	49	25	23	11	5	17	13	18	48	28	25	10
2	1645432	12	14	42	23	23	14	1	14	10	10	34	24	21	13
3	1642097	10	14	43	30	24	15	4.66	14	10	17	41	28	22	13
4	1632078	7	8	20	16	23	24	2	5	7	9	21	27	28	16
5	967286	11	14	39	30	26	12	1	13	10	17	40	28	30	12
6	1164571	12	11	37	28	26	13	1	12	12	15	39	26	30	12
7	1534780	16	17	47	24	28	12	1.33	11	10	13	34	21	20	13
8	1634763	18	14	48	29	30	15	4.33	18	17	15	50	28	26	13
9	1691381	15	23	58	24	32	21	9	21	19	26	66	28	29	27
10	1622984	14	26	64	16	32	28	4.66	22	15	23	60	19	27	15
11	1412889	13	11	46	28	32	12	1	14	12	12	38	23	27	12
12	1412886	10	13	35	28	31	15	3.66	21	13	14	48	23	31	24
13	1357281	14	21	52	23	32	12	4.33	16	12	17	45	24	26	21
14	963493	24	27	76	18	40	27	5.66	24	23	24	71	20	37	28
15	1327773	17	27	68	22	23	18	5.33	21	14	32	67	27	34	23
16	1413920	13	11	40	26	32	16	3	15	11	12	38	27	36	15
17	1601664	13	16	45	12	32	13	1	14	13	17	44	23	34	12
18	1607283	10	15	38	28	34	10	6	14	12	18	44	24	25	12
19	1651090	17	22	62	25	25	13	6	24	14	26	64	26	34	14
20	963413	11	14	38	28	36	15	1	12	7	11	30	28	25	11
21	1641654	18	18	52	23	24	16	4	17	15	14	46	25	25	14
22	663654	16	21	54	19	17	23	4	12	14	14	40	20	19	21
23	1690791	11	16	36	17	21	12	9	12	12	19	43	15	28	24
24	860360	14	23	54	25	32	21	5.33	21	15	21	57	23	34	25
25	1602290	14	12	39	28	32	19	1	12	11	9	32	25	32	14
26	1602995	19	25	65	14	18	14	3	22	15	21	58	13	12	16
27	1616996	22	23	70	17	38	23	5.33	23	21	19	63	21	37	25
28	1462622	23	18	62	26	24	13	1	19	17	13	49	24	32	12
29	1340289	22	29	77	21	28	25	7.33	24	23	28	75	16	27	26
30	1508882	15	19	50	17	38	32	1	15	18	18	51	23	34	23
31	1681366	x	x	x	x	x	x	5.66	22	17	27	66	21	25	19
32	1634648	x	x	x	x	x	x	4.33	26	18	22	66	23	28	26

S.NO.	MRD	NAME	CONDITION	AGE	SEX	EDUCATION	OCCUPATION	ADDRESS	FAMILY TYPE	SES	TYPE OF SUBSTANCE	TOTAL DURATION (years)
33	1625869	H.S.	CONTROL	25	M	Post-graduate	Student	Urban	Nuclear	Upper	Heroine	0.33
34	1439871	H.S.U.	CONTROL	36	M	12th	Farmer/ Clerical/ Shopkeeper	Rural	Joint	Upper	Raw opium	5
35	1451139	P.K.	CONTROL	55	M	10th	Farmer/ Clerical/ Shopkeeper	Urban	Nuclear	Upper	Raw opium	10
36	1623978	S.	CONTROL	46	M	12th	Unemployed	Urban	Nuclear	Upper	Raw opium	20
37	1269831	S.	CONTROL	52	M	8th	Unemployed	Rural	Joint	Lower	Raw opium	27
38	1689689	S.S.	CONTROL	44	M	12th	Semi-skilled/ Skilled worker	Urban	Joint	Upper	Narcotic medication	2
39	1213789	M.	CONTROL	28	M	12th	Unemployed	Urban	Nuclear	Upper	Heroine	3
40	1597137	D.S.	CONTROL	60	M	10th	Unemployed	Urban	Joint	Upper	Raw opium	20
41	1347012	J.S.	CONTROL	41	M	10th	Farmer/ Clerical/ Shopkeeper	Rural	Joint	Upper	Raw opium	11
42	1617113	H.	CONTROL	32	M	Graduate	Farmer/ Clerical/ Shopkeeper	Rural	Joint	Upper	Raw opium	5
43	1346942	S.	CONTROL	29	M	Post-graduate	Farmer/ Clerical/ Shopkeeper	Urban	Nuclear	Upper	Heroine	10
44	519175	J.S.	CONTROL	53	M	8th	Farmer/ Clerical/ Shopkeeper	Rural	Joint	Upper	Raw opium	25
45	1589257	S.S.	CONTROL	33	M	Graduate	Professional	Urban	Nuclear	Upper	Heroine	7
46	966873	I.S.	CONTROL	31	M	10th	Farmer/ Clerical/ Shopkeeper	Rural	Joint	Upper	Raw opium	7
47	825042	A.K.	CONTROL	28	M	Graduate	Professional	Urban	Nuclear	Upper	Heroine	8
48	1602995	H.S.	CONTROL	28	M	10th	Farmer/ Clerical/ Shopkeeper	Rural	Nuclear	Upper	Raw opium	7
49	1689697	V.	CONTROL	33	M	10th	Farmer/ Clerical/ Shopkeeper	Rural	Joint	Upper	Raw opium	2.5
50	1616742	C.S.	CONTROL	59	M	8th	Farmer/ Clerical/ Shopkeeper	Rural	Joint	Upper	Raw opium	32
51	1604897	H.S.	CONTROL	29	M	12th	Professional	Urban	Nuclear	Upper	Heroine	3
52	1605422	V.K.	CONTROL	34	M	Post-graduate	Professional	Urban	Nuclear	Upper	Heroine	0.5
53	1607690	G.S.	CONTROL	36	M	12th	Unemployed	Rural	Joint	Lower	Raw opium	5
54	1602253	J.S.	CONTROL	58	M	10th	Farmer/ Clerical/ Shopkeeper	Rural	Joint	Upper	Raw opium	7
55	1630616	G.S.	CONTROL	32	M	12th	Semi-skilled/ Skilled worker	Urban	Nuclear	Upper	Raw opium	0.68
56	1604734	H.S.	CONTROL	35	M	10th	Farmer/ Clerical/ Shopkeeper	Rural	Joint	Upper	Raw opium	7
57	253850	J.S.	CONTROL	28	M	12th	Professional	Urban	Nuclear	Upper	Heroine	1
58	1508882	M.S.	CONTROL	53	M	10th	Farmer/ Clerical/ Shopkeeper	Rural	Joint	Upper	Raw opium	14
59	1600139	K.K.	CONTROL	31	M	Post-graduate	Professional	Urban	Nuclear	Upper	Heroine	0.5
60	1607332	G.S.	CONTROL	34	M	12th	Unemployed	Rural	Joint	Lower	Raw opium	5

S.NO.	MRD	AMOUNT	LAST CONSUMPTION (days)	PRE-CRAVING	PRE-DDF	PRE-DIF	PRE-EO	PRE-TOTAL	PRE-PFC	PRE-EFC	PRE-AC	POST-CRAVING	POST-DDF
33	1625869	1	7	7	17	7	19	43	26	23	19	x	x
34	1439871	2	1	7.33	25	22	27	74	24	23	15	x	x
35	1451139	5	1	8.33	27	10	23	60	20	25	16	x	x
36	1623978	8	1	7.33	25	19	22	66	15	28	15	x	x
37	1269831	10	8	5.6	18	12	21	51	17	25	16	x	x
38	1689689	0.6	60	3.6	20	14	26	60	19	24	17	x	x
39	1213789	1	1	7.66	28	20	34	82	14	16	21	x	x
40	1597137	2	4	6.66	21	16	23	60	21	31	18	x	x
41	1347012	6	90	3.33	20	14	15	49	27	23	25	x	x
42	1617113	5	1	7.33	28	17	23	68	24	24	26	x	x
43	1346942	3	1	8.66	29	22	24	75	26	26	27	x	x
44	519175	10	1	6	25	21	28	75	19	28	23	x	x
45	1589257	1	60	5.33	25	21	27	73	19	45	18	x	x
46	966873	6	180	1	13	16	17	46	19	26	18	x	x
47	825042	1	90	3.66	18	12	21	51	29	31	17	x	x
48	1602995	8	150	2.66	14	13	16	43	24	31	18	x	x
49	1689697	6	90	4.66	26	21	25	72	19	27	27	x	x
50	1616742	10	1	6.66	24	21	28	73	20	26	22	x	x
51	1604897	3	2	5.33	20	10	33	63	24	35	19	x	x
52	1605422	0.5	10	6.33	20	13	22	55	23	31	26	x	x
53	1607690	5	7	4	20	14	21	55	18	35	21	x	x
54	1602253	3	180	4.33	19	13	24	56	17	29	22	x	x
55	1630616	1	3	4.66	27	18	28	73	17	16	22	x	x
56	1604734	2	2.33	10	12	13	35	16	28	21	21	x	x
57	253850	0.5	1	5.66	28	18	30	76	24	28	19	x	x
58	1508882	8	30	4.66	19	12	23	35	15	34	28	x	x
59	1600139	0.5	10	5.66	20	13	22	55	23	31	26	x	x
60	1607332	5	7	4	20	14	21	55	18	35	21	x	x

S.NO.	MRD	POST-DIF	POST-EO	POST-TOTAL	POST-PFC	POST-EFC	POST-AC	FU-CRAVING	FU-DDF	FU-DIF	FU-EO	FU-TOTAL	FU-PFC	FU-EFC	FU-AC
33	1625869	x	x	x	x	x	x	7	13	10	13	36	23	28	16
34	1439871	x	x	x	x	x	x	7.33	27	21	24	72	22	28	17
35	1451139	x	x	x	x	x	x	9	28	15	25	68	15	28	24
36	1623978	x	x	x	x	x	x	8.66	23	16	28	67	15	25	16
37	1269831	x	x	x	x	x	x	8	13	14	26	53	15	37	25
38	1689689	x	x	x	x	x	x	2.33	20	13	27	60	24	22	13
39	1213789	x	x	x	x	x	x	5	20	15	26	61	19	23	18
40	1597137	x	x	x	x	x	x	8	24	18	30	72	16	31	21
41	1347012	x	x	x	x	x	x	2	18	11	18	47	29	22	16
42	1617113	x	x	x	x	x	x	4.66	21	13	21	55	24	31	26
43	1346942	x	x	x	x	x	x	8	25	21	24	70	26	37	27
44	519175	x	x	x	x	x	x	8.33	24	19	29	72	15	37	27
45	1589257	x	x	x	x	x	x	3.66	20	20	26	66	25	32	14
46	966873	x	x	x	x	x	x	3.66	14	18	23	55	19	24	12
47	825042	x	x	x	x	x	x	5	15	11	23	49	24	26	26
48	1602995	x	x	x	x	x	x	4.66	14	15	15	44	15	14	12
49	1689697	x	x	x	x	x	x	1	15	17	18	50	12	14	14
50	1616742	x	x	x	x	x	x	7.33	26	22	29	77	21	28	25
51	1604897	x	x	x	x	x	x	1.33	21	12	32	65	28	37	13
52	1605422	x	x	x	x	x	x	3	21	14	24	59	26	24	25
53	1607690	x	x	x	x	x	x	7.66	17	14	18	49	15	38	26
54	1602253	x	x	x	x	x	x	2	17	15	27	59	19	32	25
55	1630616	x	x	x	x	x	x	7	28	21	24	73	19	34	28
56	1604734	x	x	x	x	x	x	1	9	9	11	29	19	25	15
57	253850	x	x	x	x	x	x	6	25	19	28	72	19	34	25
58	1508882	x	x	x	x	x	x	9	16	15	19	50	17	38	32
59	1600139	x	x	x	x	x	x	2	21	14	24	59	26	24	25
60	1607332	x	x	x	x	x	x	7.66	17	14	18	49	15	38	26

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The Principal,
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Ludhiana.

Subject: **Approval of Plan of Thesis.**

This is to inform you that the Faculty of Medical Sciences in its meeting held on 22.01.2024 has approved the plan of thesis of **Ms. Somya Jain,** a student of your college for **M.Phil. (Clinical Psychology)** along with the names of Supervisor/Co-Supervisor as under:-

Topic Plan of Thesis
Effect of mindfulness based relapse prevention on alexithymia, craving and coping styles in patients with substance use disorder

Supervisor
Ms.Palak Upadhyay
Asst. prof.
Dept. of Clinical Psychology

Co-Supervisor
Dr. Bhaleshwar Prasad Mishra
Prof. & Head
Dept. of Clinical Psychology
Dr. Mithat Miglani
Asst. Professor
Dept. of psychiatry

The student has to submit the three copies of thesis (along with PDF format) , to the Controller of Examinations, BFUHS, Faridkot, at least six months before the commencement of theory examination, if he/she is otherwise eligible to take the examination. He /She must directed to attach a photocopy of this letter with the forwarding letter while submitting thesis to the University along with the letter of approval of University for change of supervisor/Co-Supervisor, change of topic,(if any).

Controller of Examinations

Note :

1. *If any discrepancy found regarding topic of thesis or Supervisor/Co-Supervisor, inform undersigned within one month after issue of this letter.*

EFFECT OF MINDFULNESS BASED RELAPSE PREVENTION ON ALEXITHYMIA, CRAVING AND COPING STYLES IN PATIENTS WITH SUBSTANCE USE DISORDER

DISSERTATION PROPOSAL

FOR APPROVAL OF SUBJECT OF DISSERTATION TO BE SUBMITTED

IN PARTIAL FULFILMENT OF THE REQUIREMENTS

FOR THE DEGREE OF

M. PHIL

IN

CLINICAL PSYCHOLOGY

OF THE

BABA FARID UNIVERSITY OF HEALTH SCIENCES

FARIDKOT

MARCH, 2023

MS. SOMYA JAIN

DEPARTMENT OF CLINICAL PSYCHOLOGY
DAYANAND MEDICAL COLLEGE AND HOSPITAL
LUDHIANA

ABSTRACT OF PLAN OF DISSERTATION

Title	EFFECT OF MINDFULNESS BASED RELAPSE PREVENTION ON ALEXITHYMIA, CRAVING AND COPING STYLES IN PATIENTS WITH SUBSTANCE USE DISORDER
For the degree of	M. Phil Clinical Psychology
Name of the candidate	Ms. Somya Jain
Supervisor	Palak Upadhyay, Assistant Professor, Department of Clinical Psychology, DMCH, Ludhiana
Co-supervisors	Dr. Bholeshwar Prasad Mishra, Professor & Head, Department of Clinical Psychology, DMCH, Ludhiana Dr. Mitthat Miglani, Assistance Professor, Department of Psychiatry, DMCH, Ludhiana
Institution	Dayanand Medical College & Hospital, Ludhiana
University	Baba Farid University of Health Sciences, Faridkot

Introduction: Substance use disorder (SUD) is prolonged repeated use of substance at high doses and is marked by significant social, occupational, legal or interpersonal adverse consequences. This is also associated with cravings, emotional difficulties and coping styles. Mindfulness-based relapse prevention (MBRP) is an intervention which integrates mindfulness practices and cognitive and behavioral based relapse prevention techniques.

Aim of Study: 1) To study the pre and post effect of Mindfulness based relapse prevention intervention on alexithymia in patients with substance use disorder (opioid). 2) To study the pre and post effect of Mindfulness based relapse prevention intervention on drug cravings in patients with substance use disorder (opioid). 3) To study the pre and post effect of Mindfulness based relapse prevention on coping styles in patients with substance use disorder (opioid). 4) To compare and evaluate the effect of Mindfulness based relapse prevention therapy and treatment as usual on alexithymia, drug craving and coping styles in patients with substance use disorder (opioid).

Materials & methods: Study will be conducted on 60 (30 experimental; 30 control) patients diagnosed with substance use disorder (opioid), admitted or visiting in psychiatry OPD & IPD. They will fill TAS-20, Brief-COPE, 3 item craving scale; pre and post intervention. Eight sessions of mindfulness-based relapse prevention will be carried out with patients in experimental group.

Clinical Significance: The findings will help in contributing to therapeutic intervention addressing concerns about emotional difficulties, cravings and problematic coping styles in patients with substance use

Keywords: Substance use disorder, Mindfulness-based relapse prevention intervention, Opioid, Alexithymia, Coping styles, Craving

(Signature) Candidate | (Signature) Co-supervisor | (Signature) Co-supervisor | (Signature) Supervisor | (Signature) Principal

CERTIFICATE OF FACILITIES AVAILABLE

This is to certify that the facilities for work on the subject of dissertation titled **"EFFECT OF MINDFULNESS BASED RELAPSE PREVENTION ON ALEXITHYMIA, CRAVING AND COPING STYLES IN PATIENTS WITH SUBSTANCE USE DISORDER"** exist in the Department of Clinical Psychology, DMC&H, Ludhiana and will be provided to the candidate. We will see that the data being included in the dissertation is genuine and is collected by the candidate herself under our supervision and guidance.

Supervisor

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Date: _____

APPROVAL PROFORMA
BY RESEARCH & ETHICAL COMMITTEE
DAYANAND MEDICAL COLLEGE & HOSPITAL, LUDHIANA

Name of candidate	Ms. SOMYA JAIN
Department	Clinical Psychology
Topic of Dissertation	EFFECT OF MINDFULNESS BASED RELAPSE PREVENTION ON ALEXITHYMIA, CRAVING AND COPING STYLES IN PATIENTS WITH SUBSTANCE USE DISORDER
Likely date of appearing in PG examination	October, 2024
Date of enrollment	08.08.2022
Name of Head of Department	Dr. Bholeshwar Prasad Mishra
1) Supervisor **2) Co-Supervisor(s)**	Palak Upadhyay Dr. Bholeshwar Prasad Mishrra Dr. Mitthat Miglani
Signature of Members of Research Committee with Stamp	**Signature of Members of Ethics Committee with Stamp**
Dr. Harpreet Kaur (Professor & Head, Pathology)	Adv. Ankur Ghai (Legal Expert)
Dr. Jaspal Singh (Professor & Head, Surgery)	Dr. Suvir Singh (Associate Professor, Haematology)
Dr. Dinesh Gupta (Professor & Head, Medicine)	Dr. Ramit Mahajan (Professor, Gastroenterology)
Dr. Sandeep Kaushal (Dean Academics & Professor & Head, Pharmacology)	Dr. Ashvind Bawa (Professor, Surgery)
Dr. Gurpreet S Wander (Vice Principal)	Dr. Sandeep Kaushal (Professor & Head, Pharmacology)
	Dr. Gurpreet S Wander (Professor, Cardiology)
	Dr. Rajesh Mahajan (Secretary, Ethics Committee Professor, Medicine)

Approved: Yes / No

Dr. Sandeep Puri
Chairperson
Research Committee

Approved: Yes / ~~No~~

Prof. Arvind Malhotra
Chairperson
Ethics Committee

BABA FARID UNIVERSITY OF HEALTH SCIENCES, FARIDKOT

PROFORMA FOR REGISTRATION OF SUBJECT FOR DISSERTATION

1	NAME OF THE CANDIDATE AND ADDRESS	Ms. SOMYA JAIN #792, PATEL NAGAR, CIVIL LINES, LUDHIANA
2	NAME OF THE INSTITUTE	DAYANAND MEDICAL COLLEGE AND HOSPITAL, LUDHIANA
3	COURSE OF STUDY AND SUBJECT	M PHIL CLINICAL PSYCHOLOGY
4	DATE OF ADMISSION OF COURSE	08.08.2022
5	TITLE OF THE TOPIC	EFFECT OF MINDFULNESS BASED RELAPSE PREVENTION ON ALEXITHYMIA, CRAVING AND COPING STYLES IN PATIENTS WITH SUBSTANCE USE DISORDER

6. BRIEF RESUME OF THE INTENDED WORK

6.1 NEED FOR THE STUDY

Substance abuse is a pattern of compulsive substance use which is marked by recurrent significant social, occupational, legal or interpersonal adverse consequences, such as constant absence from work, school or marital difficulties. It is the prolonged repeated use of substance at high doses or high frequencies, which impairs health and function, leading to an independent diagnosable illness referred as substance use disorder.

The Ministry of Social Justice and Empowerment, Government of India, published a report "Magnitude of Substance Use in India (2019)"[1] where in the statistical analysis showed an overall prevalence of 2.06% of opioid use was found and 0.55% people in need for help, with Punjab being one of the most affected state. The prevalence of opioid use in India In the report was found to be three times the global average.[1]

Previous literature has shown that substance use disorder is related with various other mental, psychosocial and physical health problems. Young people with substance use disorders reported concentration difficulties, sleeping difficulties, anxiety and depression (Richert, Anderberg & Dahlberg, 2020).[2] Garke et. al. (2021)[3] found that high substance use severity and frequency is significantly associated with emotional dysregulation, especially difficulty controlling impulsive behaviours.

Drug dependence is accompanied with craving. Drug craving is considered as a key concept in relapse, drug abuse, and recurrence. By creating attentional bias and selective information processing, through associating with signs, processing related information in a relatively more appealing manner, increasing distractions, reducing the ability of concentrating on triggers, strengthening the awareness of internal states, and decelerating perception and the passage of time,

craving can affect recurrence of drug abuse. Wetkiewitz & Bowen (2010)[4] found that mindfulness based relapse prevention attenuated the relationship between postintervention depressive symptoms and cravings.

Alexithymia is a trait characterized by individual's difficulties in identifying and communicating emotions, differentiating feelings from bodily sensations, decrease or absence in symbolic thinking and an externally oriented thinking style, arising from deficiency in neural processing of emotions. Thorberg and collegues (2016)[5] conducted a study on stability of alexithymia among alcohol dependent patients and described alexithymia as a trait-like risk factor for development of alcohol use disorders.

Coping refers to the cognitive and behavioural efforts of individuals to manage their internal and external demands which are appraised as taxing or exceeding the resources of the individual. This can be problem focused or emotion focused, adaptive v/s maladaptive or active versus passive coping. Kronenberg and colleagues (2015)[6] found that substance use disorder patients reported more palliative, avoidant and passive coping as compared to general population.

A number of studies have been conducted indicating that mindfulness-based intervention is a beneficial therapy option that can be utilized for various substance use disorder patients and for a range of symptoms (Sancho et. al., 2018[7]; Korecki et. al., 2020[8]; Goldberg et. al., 2021[9]). Mindfulness based interventions works towards making an individual aware and pay attention to their bodily sensations, emotions and thoughts non-judgementally and objectively letting them pass. This involves meditation, body scan, breathing exercises.

Although work has been undertaken in this arena, there is a lacuna of the same in the Indian population. Moreover, mindfulness-based relapse prevention is a relatively new intervention, with very little exploration done with our current variables.The present research aims

to work on understanding how mindfulness effects alexithymia, cravings and coping styles in patients with opioid use disorder and add on to the literature gap of assessment-based studies in substance use.

INTERVENTION TO BE USED IN THE STUDY

Mindfulness-based relapse prevention (MBRP)[10] is an intervention for persons recovering from addiction which integrates mindfulness practices and cognitive and behavioural based relapse prevention techniques, with the goal of helping individuals avoid a return to substance use. The purpose of this intervention is to help in acceptance of craving and withdrawal. First, individuals are given an understanding of how one acts without thinking and educate them about relapse. The second session is focused on introducing the triggers. Next two sessions are aimed at mindfulness based meditation and breathing, where individuals focus on their both present and past experiences. Fifth session brings acceptance to situations that are stressful and includes skill action. The sixth session in the intervention focuses on making the individual's realize that their thoughts are just thoughts and they don't have to necessarily act on them. Last two sessions are aimed at broader perspective of healthy lifestyle and making the individuals continue their practice in order to avoid relapse.

6.3 REVIEW OF LITERATURE

Opioid use disorder is a common psychiatric illness in Punjab. The severity, duration, signs and outcomes vary considerably in the individuals. The debilitating condition is often associated with high relapse rates and long-lasting effects. The underlying cause and effects of substance use varies person to person. Satisfaction for the individual suffering from an addiction comes out of the feeling of pleasure, which in turn adds fuel to the addiction. Cravings are the subjective desire of the individual to experience and indulge in an addictive substance. These continuous cravings often lead to substance use disorder further giving way to maladaptive emotional experience and coping styles. Due to low mindfulness in addicts, especially after repetitive relapses, identification of risk factors and requirements among addicts can increase their mindfulness by performing related interventions. One such practice which has often been considered as effective in all these dimensions when dealing with substance use disorder is mindfulness-based relapse prevention therapy.

Increased practise of mindfulness has seen to reduce levels of anxiety, depression, anger, dissociation, rumination, alexithymia, difficulties in emotion regulation, experiential avoidance, and intensity of psychotic delusions (Greeson, 2009[11]; Keng, Smoski, & Robins, 2011[12]).

Garland et. al. (2010)[13] on a sample of 53 alcohol dependent adults conducted a mindfulness training aimed towards cognitive, affective and physiological mechanisms in alcohol dependence and hypothesized that mindfulness -based intervention can decrease addictive behaviour and disrupt the stress-relapse cycle and as a result decrease drug consumption, stress and thought suppression significantly and improve the recovery rate. He found that training intervention significantly reduced stress and thought suppression,

increased physiological recovery from alcohol cues and modulated alcohol attentional bias.

Iranshahri & Jenaabadi (2014)[14] examined the effectiveness of mindfulness therapy in controlling under treatment addicts drug cravings on 30 male addicts. Participants were evaluated on Craving Beliefs Questionnaire and Depression Anxiety Stress Scale. He found that 8 weeks of mindfulness-based therapy to be significantly effective in controlling drug cravings, and depression, stress, anxiety of under treatment addicts.

Bowen et.al. (2014)[10] evaluated the long-term efficacy of mindfulness-based relapse prevention in reducing relapse rates as compared to relapse prevention and treatment as usual during a 12 month follow up period and found that compared with treatment as usual group, participants assigned to MBRP and RP reported significantly lower risk of relapse to substance use and heavy drinking and, among those who used substances, significantly fewer days of substance use and heavy drinking at the 6-month follow-up. Cognitive-behavioural RP showed an advantage over MBRP in time to first drug use. At the 12-month follow-up, MBRP participants reported significantly fewer days of substance use and significantly decreased heavy drinking compared with other groups.

Imani et. al. (2015)[15] investigated the effectiveness of mindfulness based group therapy in patients with opioid use and found increased mean scores in observing, describing, acting with awareness, non-judging, non-reacting and decreased mean scores of alcohol and opium. He further postulated that pharmacotherapy alone is not sufficient enough to treat patients with opioid use and thus, psychological interventions such as mindfulness play an important role in the treatment of dependence as well as prevention of relapse.

Shorey et. al. (2017)[16] in their study examined a 4 week eight-session, adjunctive mindfulness and acceptance group therapy for 117 patients

in residential substance use treatment, with primary outcomes: substance use cravings, psychological flexibility, and dispositional mindfulness at treatment discharge. Findings showed small effect size differences at discharge, in favour of the Mindfulness and Acceptance group, for reduced drug cravings and increased psychological flexibility. Moreover, among individuals who received the Mindfulness and Acceptance group, the perceived importance of the group was associated with lower drug cravings and greater psychological flexibility related to substance use at discharge.

Norman, Marzano, Coulson & Oskis (2018)[17] carried out a systematic review on effect of mindfulness-based interventions on alexithymia, combining 460 participants and found statistically significant effect of treatment on alexithymia compared with control group, concluding mindfulness-based interventions as an effective treatment for the same.

Sancho et.al. (2018)[18] conducted a systematic review on mindfulness based interventions for treatment of substance behavioural addictions and included 54 articles in his study. He found that mindfulness-based treatments are effective in reducing dependence, craving, perceived stress as well as improve mood state and emotional dysregulation of the individual. He further revealed that treatment such as mindfulness-based relapse prevention and Mindfulness-Oriented Recovery Enhancementpresented better results in comparison of other treatments.

Cavicchioli, Movalli& Maffei (2018)[19] conducted a meta-analysis review of clinical efficacy of mindfulness based treatment for alcohol and drug use disorders and found small effect sizes in abstinence, levels of perceived stress and avoidance coping strategies and large effect sizes were associated to levels of perceived caring and negative affectivity.

Davis et. al., (2019)[20] demonstrated a study using a rolling group mindfulness-based relapse prevention (MBRP) intervention for young adults in residential substance use disorder treatment. They examined change in impulsivity facets measured by the S-UPPS for youth randomly assigned to MBRP (n = 45) versus those assigned to treatment as usual. The results indicated that MBRP is effective at reducing facets of trait impulsivity in treatment-seeking individuals with SUDs. Only positive and negative urgency mediated the relation between treatment assignment and substance use.

Hao & Jin (2020)[21] examined the moderated mediation effects of mindfulness facets in association between alexithymia and problematic mobile phone usage on 901 Chinese undergraduate students and advanced our understanding of mindfulness skills underlying connection between alexithymia and problematic phone usage. The results showed that alexithymia positively predicted problematic mobile use both directly and indirectly via mindfulness facet of acting with awareness and role of observing.

Roos, Bowen & Witkiewitz (2020)[22] examined approach coping and substance use outcomes following mindfulness-based relapse prevention among individuals with negative affect symptomatology and found that mindfulness-based relapse prevention predicted increased in approach coping, which predicted fewer heavy drinking days and substance related problems at 12 month follow up.

Ross- Anyaso (2021)[23] did a mindfulness-based intervention and relapse rates, which consisted of meditation and mindful breathing exercises, motivational interviewing and relapse prevention cognitive therapy, in adults with history of substance use disorder and found less than 15% reduction in incidence after three months of MBI intervention, with clinically significant improvement in relapse outcomes two months after intervention.

Ramadas et. al. (2021)[24] in his recent research study on effectiveness of this intervention in substance use patients found that it helps reduce cravings, decrease frequency of use and improves depressive symptoms.

Palma-Álvarez et al. (2021)[25] conducted a study on 126 Spanish outpatients with substance use disorder, correlating their alexithymia levels to psychiatric comorbidities and found that alexithymia was found to be significantly higher in patients who had cannabis use disorder and also that these individuals has higher levels of depression, anxiety, impulsivity.

Somohano & Bowen (2022)[26] in a sample of 83 women with PTSD and substance use disorder applied either traumatic-focused mindfulness based relapse prevention or MBRP in the participants and found that TI-MBRP demonstrated acceptability among participants; however, attrition was high (64%) at 12-month follow-up. Reductions in PTSD were greater in the MBRP than in the TI-MBRP group at postcourse and 1-month follow-up, and there were significant reductions in PTSD severity and craving over the 12-month period in both conditions.

Asadabad et. al. (2022)[27] did a quasi-experimental study with a pre-test-post-test and follow-up design on 36 patients who met the diagnostic and statistical manual of mental disorders (DSM-5) criteria for OUD. The participants were randomly assigned to two groups. One group received a combination of MBRP group therapy and TAU, and the other group was treated only by TAU. The participants filled out the Other as Shamer Scale and the Forms of Self-Criticizing/Attacking and Self-Reassuring Scale in the pre-test, post-test, and follow-up stages. The study found that mean score of shame significantly decreased in the follow-up compared to pre-test and post-test. Moreover, the combination of MBRP group therapy and TAU was significantly more effective than TAU alone.

Massaro et. al. (2022)[28] took a sample of 108 Spanish detoxified outpatients in treatment as usual (TAU) treatment (i.e., relapse prevention program) for SUDs were randomized to a TAU + I-MBRP group (n = 54) or TAU + I-RT group (n = 54). Participants completed self-reports measuring substance use, craving, impulsivity, well-being, and mindfulness at pre-treatment, post-treatment, and follow-up at 2 months and 4 months. The I-MBRP, compared with the I-RT, significantly reduced the frequency of substance use and craving and improved mindfulness skills at the end of treatment. The benefits were maintained at 4 months.

Thus, these findings suggest the link between alexithymia, craving and coping styles in patients with substance use disorders and the role of mindfulness-based interventions in different variables in patients with substance use

6.4 AIMS AND OBJECTIVES OF THE STUDY

- To study the pre and post effect of Mindfulness based relapse prevention intervention on alexithymia in patients with substance use disorder (opioids).
- To study the pre and post effect of Mindfulness based relapse prevention intervention on drug cravings in patients with substance use disorder (opioids).
- To study the pre and post effect of Mindfulness based relapse prevention on coping styles in patients with substance use disorder (opioids).
- To compare the effect of Mindfulness based relapse prevention therapy v/s treatment as usual on alexithymia, drug craving and coping styles in patients with substance use disorder (opioids).

7. MATERIALS AND METHODS

7.1 SOURCE OF DATA

Study will be conducted on 60 patients diagnosed with substance use disorder (opioids) as per ICD-11 admitted in psychiatry ward or visiting psychiatry OPD at Dayanand Medical College and Hospital.

7.2 METHOD OF COLLECTION OF DATA

Design: Experimental group design with pre-post intervention

Sample size: 60 patients with substance use disorder (opioids) (30 experimental group; 30 control group)

Experimental group: 30 patients with substance use disorder (opioids) will be given mindfulness-based relapse prevention intervention.

Control group: 30 patients with substance use disorder (opioids) will be on treatment as usual.

Sample design: Purposive sampling design will be used. The respondents who meet the inclusion criteria will be selected for the study.

INCLUSION CRITERIA (Experimental group)

- ICD 11 diagnosis of substance use disorder (opioids) in treatment.
- Patients in maintenance phase of the treatment.
- Age group between 18 to 40 years of either gender.
- Primary level education
- Patients willing to give informed consent.

EXCLUSION CRITERIA (Experimental group)

- Patients having a diagnosis of any other substance use disorders apart from opioid use
- Presence of comorbid psychiatric disorders.
- History of intellectual disability
- Major neurological disorder or communication disorder

INCLUSION CRITERIA (Control group)

- ICD 11 diagnosis of substance use disorder (opioid) in treatment.
- Patients in maintenance phase of the treatment.
- Matched for age, gender and education level.
- Patients willing to give informed consent.

EXCLUSION CRITERIA (Control group)

- Patients having a diagnosis of any other substance use disorders apart from opioid use
- Presence of comorbid psychiatric disorders.
- History of intellectual disability
- Major neurological disorder or communication disorder

DESCRIPTION OF THE TOOLS:

i. **Socio- demographic Performa:** A semi-structured proforma was designed for the present study in order to collect detailed clinical history of each participant including information related to following areas:
   - Socio-demographic details including age, gender, MRD number, occupation, education, occupation, income, marital status
   - Information related to substance use- duration, last used, frequency, amount, mode
   - Scores of all the test

ii. **Toronto Alexithymia Scale (TAS- 20)**- Alexithymia will be measured using TAS-20, which is a self-report scale that is comprised of 20 items. This scale has three subscale: difficulty describing feelings (5 items- 2, 4, 11, 12, 17); difficulty identifying feelings (7 items- 1, 3, 6, 7, 9, 13, 14) and externally oriented thinking, which is the tendency of individuals to focus their attention externally (8 items- 5, 8, 10 15, 16, 18, 19, 20). Items are rated using a 5-point Likert scale whereby 1 = strongly

disagree and 5 = strongly agree. There are 5 items that are negatively keyed (items 4, 5, 10, 18 and 19). The total alexithymia score is the sum of responses to all 20 items. The TAS-20 uses cutoff scoring: equal to or less than 51 = non-alexithymia, equal to or greater than 61 = alexithymia. Scores of 52 to 60 = possible alexithymia. Demonstrates good internal consistency (Cronbach's alpha = .81) and test-retest reliability (.77, p<.01).

iii. **Brief- COPE** (Carver, C.S.) : It is an abbreviated version of 60 item COPE inventory. The items deal with ways one has been coping with the stress in their lives. It measures following subscales: self-distraction, active coping, denial, substance use, use of emotional support, use of instrument support, behavioral disengagement, venting, positive framing, planning, humor, acceptance, religion and self-blame. The scale consists of 28 items, scored on a 4 point scale from 1 (I haven't been doing that at all) to 4 (I've been doing this a lot). Brief COPE's internal consistencies were found to be good for emotion-focused, problem-focused and dysfunctional subscales (alpha = 0.72, 0.84, 0.75)

iv. **The 3-item Craving Scale** (Weiss et al., 1995) consists of the following items: (1) "Please rate how strong your desire was to use in the past 24 hours." (2) "Please imagine yourself in the environment in which you previously used drugs or alcohol. If you were in this environment today, what is the likelihood you would use?" (3) "Please rate how strong your urges are for drugs or alcohol when something in the environment reminds you of it." Each item was rated on a scale from 0 to 9, and the total was calculated as the average of the three items. Higher score indicates greater craving. The Craving Scale demonstrated strong internal consistency reliability (omega =

.81), a single-factor latent structure, and adequate concurrent and discriminant validity (McHugh et. al., 2021)[29]

PROCEDURE

Baseline assessment- The patient will first undergo informed consent process, in which the necessary information would be provided to enable the participant to make an informed decision. The participants who provide consent would then be given baseline assessments along with Socio Demographic Performa. The participant would then be randomly assigned to experimental v/s control group measure, and be scheduled for their intervention appointment.

The participants in the experimental group would undergo 8 weekly sessions of Mindfulness-based relapse prevention therapy. Post intervention they would be re-assessed on baseline assessments.

The participants in the control group would be given treatment as usual (pharmacotherapy) and will be re-assessed on baseline assessments after 3 months.

The scores would then be compared and analyzed using appropriate statistical methods.

Intervention appointment- This would consist of the following sessions:

Table 1. Session plan for Experimental group (based on Penberthy et. al., 2015[30]

S.NO	SESSION	AREA
1	Baseline appointment	Reviewing history, Baseline assessments
2	Session 1	Automatic pilot and relapse. Therapeutic exercises: raisin exercise and body scan meditation
3	Session 2	Awareness of triggers and cravings. Introducing triggers to the participant. Therapeutic exercises:

		urge surfing and mountain meditation
4	Session 3	Mindfulness in daily life. Focus on here and now. Therapeutic exercises: SOBER (Stop, Observe, Breath, Expand, Respond) breathing space is introduced.
5	Session 4	Mindfulness in high-risk situations. Focus on past situations and learning to look at urges differently. Therapeutic practices: SOBER breathing space in challenging situations and walking meditation
6	Session 5	Acceptance and skill action. Therapeutic exercise; sitting meditation and SOBER
7	Session 6	Seeing thoughts as thoughts. Sitting meditation and SOBER
8	Session 7	Self-care and lifestyle balance. Loving kindness meditation
9	Session 8	Social support and confirming practice. Therapeutic exercise: body scan and meditation. Post intervention assessment and debriefing

8 weekly sessions of 40 minutes each will be given.

For those in the Control Group, after the baseline assessments, they would undergo treatment as usual. Patients will be re-assessed on the baseline assessments after a period of 3 months. Debriefing will be done.

OUTCOME

Mindfulness based relapse prevention has been considered as one of the most recent effective interventions for substance use disorders. The present study will help us focus on how mindfulness based relapse prevention works upon emotional difficulties, cravings and coping styles of patients with substance use disorder. The findings of the present study would aid to enrich the existing fund of knowledge regarding this important domain. The practical implications of the findings would help in more efficient planning of rehabilitation programmes for substance use patients. It will also aid in highlighting the specific target area to aid towards better relapse rates.

STATISTICAL ANALYSIS

Data will be described in terms of range; mean ±standard deviation (± SD), median, frequencies (number of cases) and relative frequencies (percentages) as appropriate. To determine whether the data is normally distributed, a Kolmogorov-Smirnov test will be used. Comparison of quantitative variables between the study groups will be done using Student t-test and Mann Whitney U test for independent samples for parametric and non-parametric data respectively. For comparing categorical data, Chi square ($\chi 2$) test will be performed and fisher exact test was used when the expected frequency is less than 5. Comparison of pre and post quantitative variables will be done using Paired t-test and Wilcoxon Rank test for independent samples for parametric and non-parametric data respectively.

A probability value (p value)less than 0.05 will be considered statistically significant.All statistical calculations will be done using (Statistical Package for the Social Science) SPSS 21version (SPSS Inc., Chicago, IL, USA) statistical program for Microsoft Windows.

7.3 DOES THE STUDY REQUIRE ANY INVESTIGATIONS OR INTERVENTIONS TO BE CONDUCTED ON PATIENTS OR OTHER HUMANS OR ANIMALS ? IF SO, PLEASE DESCRIBE BRIEFLY.

No.

7.4 HAS ETHICAL CLEARENCE BEEN OBTAINED FROM YOUR INSTITUTION IN CASE OF 7.3 ?

Yes Attached herewith.

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SOCIO-DEMOGRAPHIC PROFORMA

S.NO: - **Date:**

1. NAME:

2. AGE:

3. SEX: - Male/ Female

4. MRD.NO: -

5. Education-

a) Illiterate b) Up to Matric
c) 10th d) 12th e) Graduate f) Postgraduate

6. Occupation-

a) Farmer/Clerical/Shopkeeper b) Semi-skilled/skilled worker
c) Unemployed d) Other
e) Professional f) Student

7. Address- a) Urban b) Rural

8. Contact no.-

9. Family Type- a) Nuclear b) Joint

10. Education

Professional degree
Graduate or postgraduate
Intermediate or post high school diploma
High school certificate
Middle school certificate
Primary school certificate
Illiterate

11. Occupation

Professional
Semi- professional
Clerical, shop owner/farm
Semi-skilled worker
Unskilled worker
Unemployed

12. Monthly income of the family

>52,734
26,335-52,733
19,759-26,354
13,161- 19,758
7,887-13,160
2,641-7,886
<2,640

13. Socio economic status

Upper
Upper middle
Lower middle
Upper lower
Lower

Signature of Candidate **Signature of Supervisor**

14. Diagnosis:

15. Pharmacological treatment history:

16. Type of substance use:

17. Total duration of substance use:

18. Frequency of use:

19. Last consumption:

Signature of Candidate **Signature of Supervisor**

20. PSYCHOTHERAPEUTIC INTERVENTIONS (for experimental group):

	CRAVING SCALE	TORONTO ALEXITHYMIA SCALE				Brief-COPE		
		DIFFICULTY DESCRIBING FEELINGS	DIFFCIULTY IDENTIFYING FEELINGS	EXTERNAL ORIENTATION	TOTAL	PROBLEM-FOCUSED COPING	EMOTION FOCUSED COPING	AVOIDANCE FOCUSED COPING
PRE-INTERVENTION SCORES								
SESSION 1								
SESSION 2								
SESSION 3								
SESSION 4								
SESSION 5								
SESSION 6								
SESSION 7								
SESSION 8								
POST INTERVENTION SCORES								
FOLLOW UP SCORES								

21. PSYCHOTHERAPEUTIC INTERVENTIONS (for control group):

	CRAVING SCALE	TORONTO ALEXITHYMIA SCALE				Brief-COPE		
		DIFFICULTY DESCRIBING EMOTIONS	DIFFICULTY IDENTIFYING EMOTIONS	EXTERNAL ORIENTATION	TOTAL	PROBLEM FOCUSED COPING	EMOTION FOCUSED COPING	AVOIDANCE FOCUSED COPING
BASELINE ASSESSMENT								
FOLLOW UP								

CONTACT NO.

Signature of Candidate **Signature of Supervisor**

3-ITEM CRAVING SCALE

"Please rate how strong your desire was to use in the past 24 hours."

1 2 3 4 5 6 7 8 9

"Please imagine yourself in the environment in which you previously used drugs or alcohol. If you were in this environment today, what is the likelihood you would use?"

1 2 3 4 5 6 7 8 9

"Please rate how strong your urges are for drugs or alcohol when something in the environment reminds you of it."

1 2 3 4 5 6 7 8 9

TORONTO ALEXITHYMIA SCALE (TAS-20)

Please indicate the extent to which you agree or disagree with each of the following statements

		Strongly Agree	**Agree**	**Neutral**	**Disagree**	**Strongly disagree**
		1	**2**	**3**	**4**	**5**
1	I am often confused about what emotion I am feeling					
2	It is difficult for me to find the right words for my feelings					
3	I have physical sensations that even doctors don't understand					
4	I am able to describe my feelings easily(R)					
5	I prefer to analyse problems rather than just describe them (R)					
6	When I am upset, I don't know if I am sad, frightened, or angry					
7	I am often puzzled by sensations in my body					
8	I prefer to just let things happen rather than to understand why they turned out that way					
9	I have feelings that I can't quite identify					
10	Being in touch with emotions is essential (R)					
11	I find it hard to describe how I feel about people					
12	People tell me to describe my feelings more					
13	I don't know what's going on inside me					
14	I often don't know why I am angry					
15	I prefer talking to people about their daily activities rather than their feelings					
16	I prefer to watch "light" entertainment shows rather than psychological dramas					
17	It's difficult for me to reveal my innermost feelings, even to close friends					
18	I can feel close to someone, even in moments of silence (R)					
19	I find examination of my feelings useful in solving personal problems (R)					
20	Looking for hidden meanings in movies or plays distracts from their enjoyment					

Brief COPE (PTLDS)

These items deal with *ways you've been coping with stress in your life, specifically any problems associated with your overall health in the past several months. If you have not had any health problems in the last several months, then rate the items based on how you have been coping with any stress in your life, across the past several months.* There are many ways to try to deal with problems. These items ask what you've been doing to cope with these problems. Obviously, different people deal with things in different ways, but I'm interested in how you've tried to deal with it.

Each item says something about a particular way of coping. I want to know to what extent you've been doing what the item says. How much or how frequently. Don't answer on the basis of whether it seems to be working or not—just whether or not you're doing it. Use these response choices. Try to rate each item separately in your mind from the others. Make your answers as true FOR YOU as you can.

1 = I haven't been doing this at all
2 = I've been doing this a little bit
3 = I've been doing this a medium amount
4 = I've been doing this a lot

I am answering these questions based on (please check one): ☐ Overall health problems ☐ Other, non-health stressors

1. I've been turning to work or other activities to take my mind off things. **1 2 3 4**
2. I've been concentrating my efforts on doing something about the situation I'm in. **1 2 3 4**
3. I've been saying to myself "this isn't real." **1 2 3 4**
4. I've been using alcohol or other drugs to make myself feel better. **1 2 3 4**
5. I've been getting emotional support from others. **1 2 3 4**
6. I've been giving up trying to deal with it. **1 2 3 4**
7. I've been taking action to try to make the situation better. **1 2 3 4**
8. I've been refusing to believe that it has happened. **1 2 3 4**
9. I've been saying things to let my unpleasant feelings escape. **1 2 3 4**
10. I've been getting help and advice from other people. **1 2 3 4**
11. I've been using alcohol or other drugs to help me get through it. **1 2 3 4**

12. I've been trying to see it in a different light, to make it seem more positive.	1 2 3 4
13. I've been criticizing myself.	1 2 3 4
14. I've been trying to come up with a strategy about what to do.	1 2 3 4
15. I've been getting comfort and understanding from someone.	1 2 3 4
16. I've been giving up the attempt to cope.	1 2 3 4
17. I've been looking for something good in what is happening.	1 2 3 4
18. I've been making jokes about it.	1 2 3 4
19. I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.	1 2 3 4
20. I've been accepting the reality of the fact that it has happened.	1 2 3 4
21. I've been expressing my negative feelings.	1 2 3 4
22. I've been trying to find comfort in my religion or spiritual beliefs.	1 2 3 4
23. I've been trying to get advice or help from other people about what to do.	1 2 3 4
24. I've been learning to live with it.	1 2 3 4
25. I've been thinking hard about what steps to take.	1 2 3 4
26. I've been blaming myself for things that happened.	1 2 3 4
27. I've been praying or meditating.	1 2 3 4
28. I've been making fun of the situation.	1 2 3 4

INFORMED PATIENT CONSENT

Date: _____

I.....D/o, W/o, S/o..... .....am willing to participate in the study **"EFFECT OF MINDFULNESS BASED RELAPSE PREVENTION ON ALEXITHYMIA, CRAVING AND COPING STYLES IN PATIENTS WITH SUBSTANCE USE DISORDER"** The procedure with its complications has been explained to me in local vernacular language. I have fully understood that no special tests and extra expenditure in any form, merely for the purpose of dissertation is being carried out. I am free to opt out the study any time without assigning any reason.

....

Signature of the Witness Signature of the patient

Name:

Signature of Candidate **Signature of Supervisor**

मरीज अनुमति फार्म

तिथि _____

मैं _____ पत्नी/पुत्र/पुत्री _____

निवासी _____

इस शोधकार्य **"EFFECT OF MINDFULNESS BASED RELAPSE PREVENTION ON ALEXITHYMIA, CRAVING AND COPING STYLES IN PATIENTS WITH SUBSTANCE USE DISORDER"** में भाग लेने के लिए सहमत हूँ। मैं इस शोधकार्य में भाग लेने के लिए अपनी स्वेच्छा से तैयार हूँ। मैं पुष्टि करता/करती हूँ की यह स्वीकृति देने के लिए मुझे कोई आर्थिक प्रलोभन नहीं दिया गया और न ही दबाव डाला गया है। मुझे इस शोधकार्य का उद्देश्य स्पष्ट कर दिया गया है और मुझे यह विश्वास है की यह विज्ञान और मानवता के लाभ के लिए है। मुझे इस शोधकार्य में होने वाले जोखिम के बारे में समझा दिया गया है और मेरी समझ में यह जोखिम बहुत मामुली है।

मैं इस शोधकार्य में भाग लेने के सम्बन्ध में किसी भी समय अपनी अस्वीकृति व्यक्त कर सकता/सकती हूँ और मेरे अस्वीकृति व्यक्त करने का मेरे इलाज पर कोई प्रभाव नहीं पड़ेगा।

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गवाह के हस्ताक्षर रोगी के हस्ताक्षर/अंगूठे का निशान

नाम: नाम:

_____

अन्वेषक के हस्ताक्षर

_____

विद्यार्थी के हस्ताक्षर

ਮਰੀਜ਼ ਰਜ਼ਾਮੰਦੀ ਫਾਰਮ

ਮਿਤੀ_____

ਮੈ_____ਪਤਨੀ/ਪੁੱਤਰ/ਪੁੱਤਰੀ_____

ਵਾਸੀ_____ _____

"EFFECT OF MINDFULNESS BASED RELAPSE PREVENTION ON ALEXITHYMIA, CRAVING AND COPING STYLES IN PATIENTS WITH SUBSTANCE USE DISORDER" ਤੇ ਚਲ ਰਹੀ ਖੋਜ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਲਈ ਰਜ਼ਾਮੰਦ ਹਾਂ ।ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਲਈ ਮੈ ਆਪਣੀ ਮਰਜ਼ੀ ਨਾਲ ਤਿਆਰ ਹਾਂ ।ਮੈ ਇਹ ਦਸਣਾ ਚਾਹੁੰਦਾ ਹਾਂ/ ਚਾਹੁੰਦੀ ਹਾਂ ਕੇ ਇਹ ਰਜ਼ਾਮੰਦੀ ਦੇਣ ਵਾਸਤੇ ਮੈਨੂ ਕਿਸੇ ਵੀ ਤਰਾਂ ਦਾ ਲੋਭ-ਲਾਲਚ ਨਹੀ ਦਿੱਤਾ ਗਿਆ ਅਤੇ ਨਾ ਹੀ ਕੋਈ ਦਬਾ ਪਾਇਆ ਗਿਆ ਹੈ। ਮੈਨੂ ਇਸ ਖੋਜ ਦਾ ਮਨੋਰਥ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ ਅਤੇ ਮੈਨੂ ਇਹ ਭਰੋਸਾ ਦਵਾਇਆ ਗਿਆ ਹੈ ਕੇ ਇਹ ਖੋਜ ਵਿਗਿਆਨ ਅਤੇ ਮਾਨਵਤਾ ਦੀ ਭਲਾਈ ਲਈ ਹੈ ।ਮੈਨੂ ਇਸ ਖੋਜ ਵਿਚ ਹੋਣ ਵਾਲੇ ਖਤਰੇ ਬਾਰੇ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ ਅਤੇ ਮੈਨੂ ਇਹ ਯਕੀਨ ਹੈ ਕੇ ਇਹ ਖਤਰਾ ਬਹੁਤ ਮਾਮੂਲੀ ਹੈ ।ਮੈਨੂ ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਦਾ ਢੰਗ – ਤਰੀਕਾ ਸਮਝਾ ਦਿੱਤਾ ਗਿਆ ਹੈ।

ਮੈ ਇਸ ਖੋਜ ਕੰਮ ਵਿਚ ਹਿੱਸਾ ਲੈਣ ਬਾਰੇ ਆਪਣੀ ਰਜ਼ਾਮੰਦੀ ਕਿਸੇ ਵੀ ਸਮੇ ਵਾਪਸ ਲੈ ਸਕਦਾ ਹਾਂ/ ਸਕਦੀ ਹਾਂ ਅਤੇ ਮੇਰੀ ਰਜ਼ਾਮੰਦੀ ਵਾਪਸ ਲੈਣ ਦਾ ਮੇਰੇ ਇਲਾਜ ਤੇ ਕੋਈ ਅਸਰ ਨਹੀ ਹੋਵੇਗਾ।

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ਗਵਾਹ ਦੇ ਹਸਤਾਖਰ ਮਰੀਜ਼ ਦੇ ਹਸਤਾਖਰ

ਮਿਤੀ_____ ਮਿਤੀ_____

ਪਤਾ _____ ਪਤਾ_____

_____

ਨਿਰੀਖਕ ਦੇ ਹਸਤਾਖਰ

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ਸਿਖਿਆਰਥੀ ਦੇ ਹਸਤਾਖਰ